Hobbies WEEKLY

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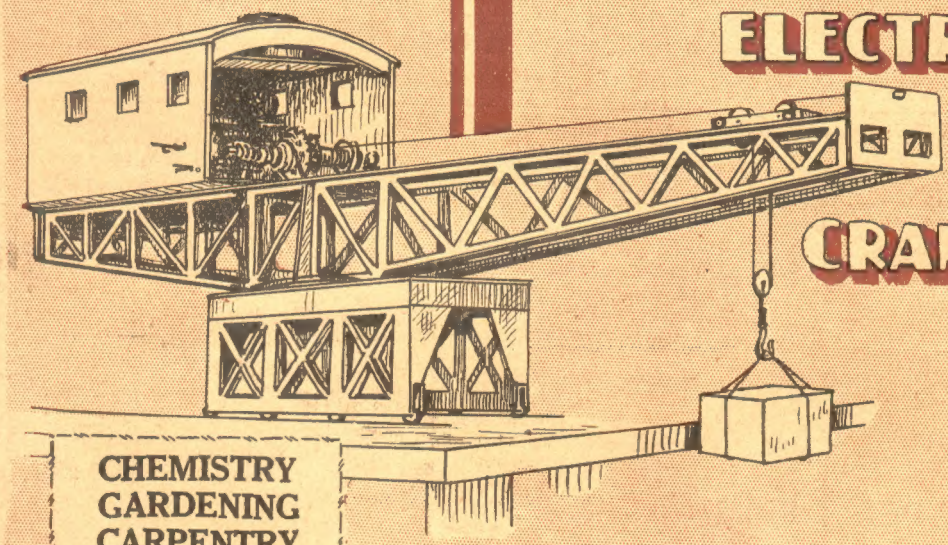

CHEMISTRY
GARDENING
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2D.

March 2nd. 1935 Vol. 79. No. 2054

THE FRETWORKER'S AND HOME CRAFTSMAN'S JOURNAL

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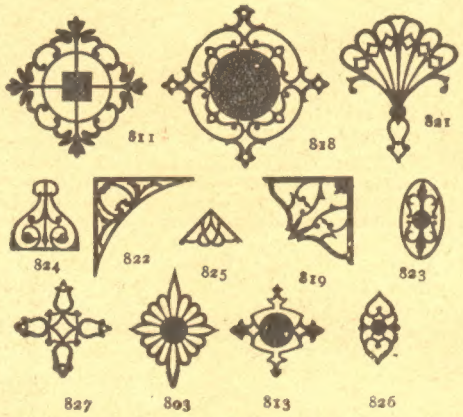
No thicker than a visiting card. Cleanly cut in wood suitable for staining any shade. Easily applied with Hobbies glue. Use them for decorating panels, cabinet doors, etc. They are big value at the prices quoted.



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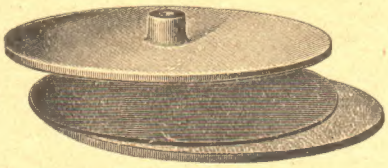
HOBBIES 1935 HANDBOOK

ACCESSORIES for your MACHINE

These accessories will help you to get the most out of your machine. The sandpaper discs are a most useful acquisition, enabling one to sand down work quickly and easily. The side wings clamp on to the machine table and give additional support when cutting large boards; whilst the neat, little dust blower does a much-needed job in a simple but effective manner.



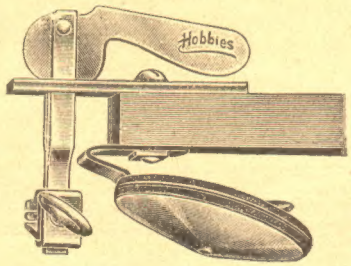
SANDPAPER DISCS

Fixed in place of the balance wheel. One disc has coarse sandpaper and the other fine. The lower picture shows the two discs held by the four spring clips, whilst fresh sandpaper is being glued in position. Complete set comprising 2-Discs, 2 pieces Sandpaper, 4 Spring Clips and 1 piece of green Baize. Price 8/6, post 1/-

1 Disc only, 3/6, post 9d. Spring Clips, 4d. each Sandpaper, 1½d. sheet.

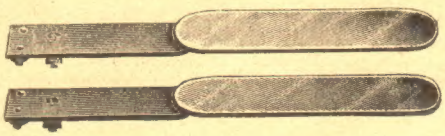
If you require other accessories or spare parts for your Hobbies machine, consult the 1935 Handbook, or write to Hobbies Limited, Dereham, about it.

You can buy these accessories from any Hobbies branch or agent or direct from HOBBIES LIMITED DEREHAM NORFOLK



DUST BLOWER

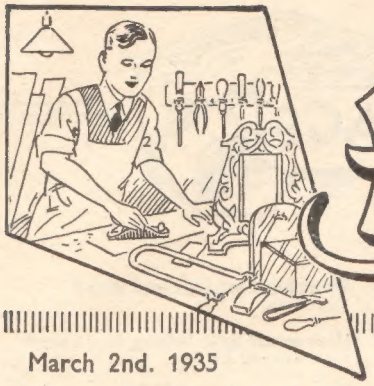
Blows away the dust around the sawblade and cutting line. It is easily fixed to the underside of the top arm and is automatic in action. Price 9d., post 2d.



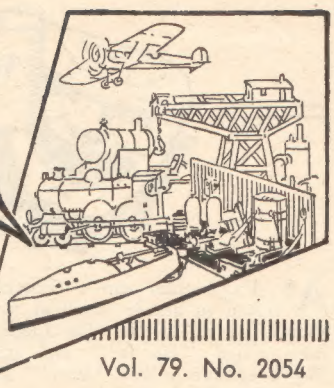
SIDE WINGS

A screw adjustment brings the wings level with the surface of the table. They can be swung round towards the back of the machine when not in use, to save space in storage. Price 4/6 per pair, post 9d.

NOTE.—Side wings cannot be fitted to the Gem machine.



Hobbies WEEKLY



March 2nd. 1935

Letters should be addressed to The Editor, Hobbies Weekly, Dereham, Norfolk.

Vol. 79. No. 2054

NOTES of the WEEK

A New Feature—A Wonderful Crane — A Liner Coming ! — Competition Results — Jig-saws at Sandringham—A French Ship Model.

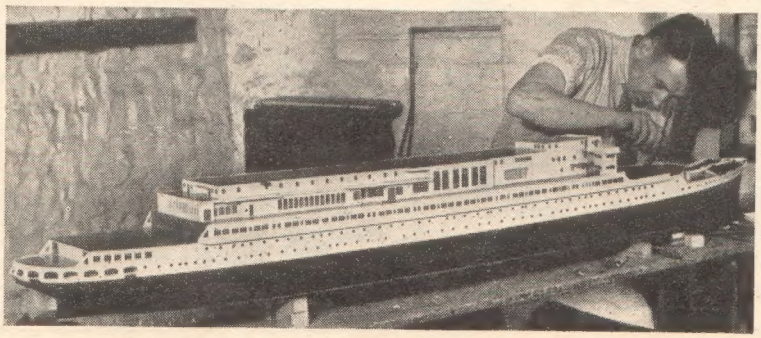
IN this issue we commence a new regular feature of Scout Notes which, we hope, will be popular. They will be full of 'meaty' news for all ranks, and it will be the more interesting if you will get your Troop news sent in, as suggested.

ANOTHER popular feature is sure to be that Crane in the centre pages. No book has ever dealt with such a model; giving away a full size pattern chart and telling you how to build an electrically driven "Titan."

MODELS are more popular than any class of work just now and I have several very special ones in hand, and next week I'm going to tell you about one of the great Imperial Airway Liners set out for you on a design chart. That *will* be the goods !

THE winner of No. 4 Crossword Puzzle was E. A. Bates of Wanstead Park Rd., Ilford, and that of No. 5 was M. Robson of Sutton Dwells., South Shields. The Gem machine prize is already in use by these people and another opportunity to win will be given you from time to time.

BY the way, the Judges have been a long time in awarding the prizes in the Open Section of the Gift Fretwork Competition organized by Hobbies Ltd. last year. That was because it was a difficult task with a large number of entries, but they promise I shall have the results for next week. Look out for yours!



HOW about owning a real model liner like the one shown here ? But what patience and pride to keep going on a huge hull like that ! The model is "Champion," one of the latest French liners now in course of construction.

THE fascination of solving jig-saw puzzles has now extended to the Queen. During a stay at Sandringham recently, she had various tables with the puzzles upon them and the guests were intrigued into piecing them together. The subject of the puzzle was kept a complete secret from the guests, and two of the most popular and difficult puzzles that have just been completed turned out to be "The Wedding of the Duke and Duchess of Kent" and "The Launching of the Queen Mary." The Ex-Queen of Spain is an expert at jig-saw puzzles and was responsible for much work in the direction during her visit to Sandingham.

THOSE who are making up the Electric Bagatelle Game, published recently, should remember that, the spring, balls, cups, plunger, etc., are all obtainable from Hobbies at quite a reasonable price.

CAN you help these readers ? L. Atkin, of 258, Robin Hood Lane, Hall Green, Birmingham, wants to buy a copy of Hobbies Weekly (out of stock here) dated November 21st, 1931, and John A. Steiner of 16, Maycross Avenue, Morden Merton, Surrey would like to form a Hobbies Club there.

The Editor

THE FUN AND PUZZLE PAGE

AN Englishman and a Scotsman tossed to decide which of them should pay for drinks. The Englishman called "Heads!" and won. The Scotsman called "Fire!" and escaped in the confusion.

How may book-keeping be learnt quickly?

By remembering the maxim, "Never lend books."

THE RETORT COURTEOUS.

LORD Birkenhead was said to have been only worsted once during his great career at the Bar—when he reproved the accused: "Please do not look at the jury: they can look after themselves." "Maybe," retorted the accused, "but I want them to look after me."

"Engaged? But I thought there was a provision in your late husband's will that if you married again his fortune was to go to his brother."

"That's so. I'm marrying his brother!"

THERE was a very keen rivalry between two seedsmen in a country town. One advertised "With every plant we give a packet of seeds." The other was not to be outdone. His retort was, "With every plant we give the earth."

SIMPLE DIVISION.

A FARMER died and left behind him three sons and nineteen horses. In his will, the worthy man gave directions that the eldest son was to inherit half the horses; the next son was to have a quarter of the nineteen horses; and the youngest son was to have a fifth of the nineteen horses. But—and this was laid down very emphatically—none of the horses was to be slain in order to help in the division. Of course, it is not easy to divide 19 into two, four or even five parts without a remainder. Nevertheless, it was done in a few moments by a neighbouring farmer who happened to ride up just as the brothers were at their wits' end. How did he do it?

The answer is given foot col. 3.

What has four legs and flies?
Two birds.

How many days belong to a year?
325. *The rest are Lent.*

Why is the letter D like a wedding ring?
We could not be WED without it.

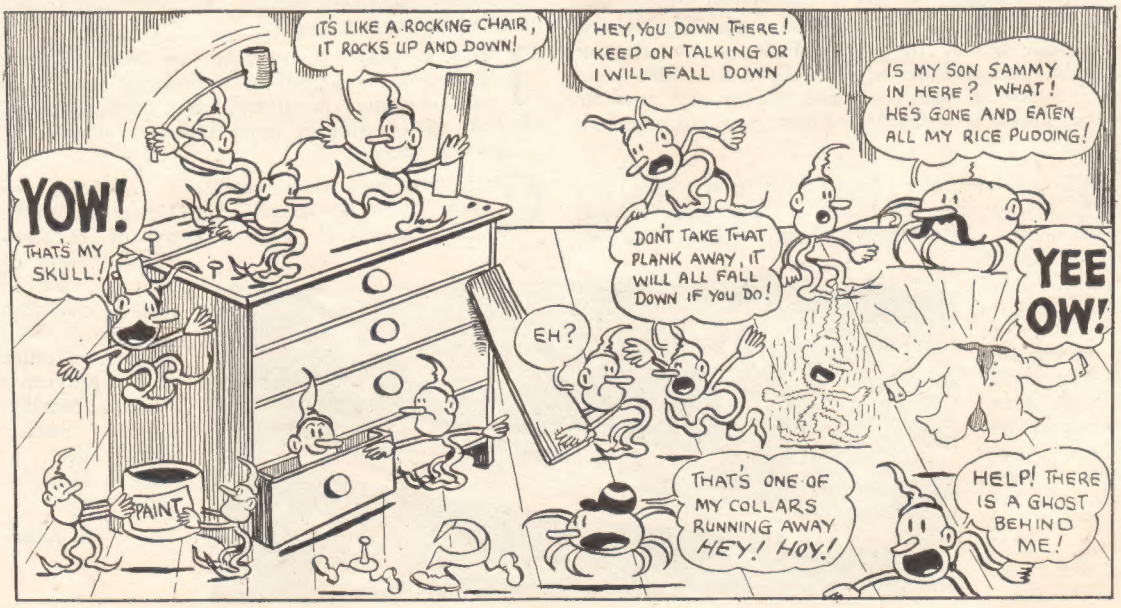
What is it we all often say we will do, and nobody has ever done yet?
Stop a minute.

THE Irish lady, new to motoring, puzzling over her petrol indicator remarked, "It's at the half-way mark and I can't remember if that means half-full or half-empty."

ANSWER.

Here is the answer to the problem of dividing the horses. The farmer rode up, jumped off his own horse and put it with the nineteen, making twenty. Then he gave half the horses (10) to the eldest brother, a quarter (5) to the second brother, and a fifth (4) to the youngest brother. The 10, 5 and 4 horses made 19. The twentieth horse was his own, upon which he remounted and departed.

THE IMPIES BUILD A CHEST OF DRAWERS



The AMATEUR WOODWORKER

A SIMPLE MODERN PIECE OF CABINET MAKING

How to make a COCKTAIL CABINET

THERE is no doubt about it that the Cabinet shown is ideal when entertaining your friends, for it holds everything needed, and is easily wheeled about to any position required. In respect to size, ample provision has been made for bottles in the lower cupboard, while in the top compartment space is provided for glasses, jugs or small decanters.

By having too, a falling flap door to this latter, and a lid that lifts up, a convenient tray is formed upon which to stand the glasses that are to be filled, and easy access afforded for handling the contents.

A Roomy Cabinet

A cabinet so simple in design and construction as this one could be made to a larger size, if desired, without any appreciable alteration in the thickness of supporting rails, etc. Instead of the clear width of 15ins. as shown and allowed for between the legs, 18ins. would, perhaps, be a more convenient width for a larger room or for a larger stock of glasses, etc., Above this size, however, it would be advisable slightly to increase the depths and thicknesses of the rails, and add further support to the floors.

Ready Grooved Legs

The two very instructive views show the cabinet closed and open ready for use, while the front view (Fig. 1) and the section through the cabinet (Fig. 2) gives details and measurements for its construction. By using the specially grooved legs (Hobbies No. 535) the fixing of the sides and the back is greatly simplified, and it is only necessary to build up the framework of the Cabinet, as illustrated, in Fig. 3, and to slide the pieces down into place in the grooves.

The Framework

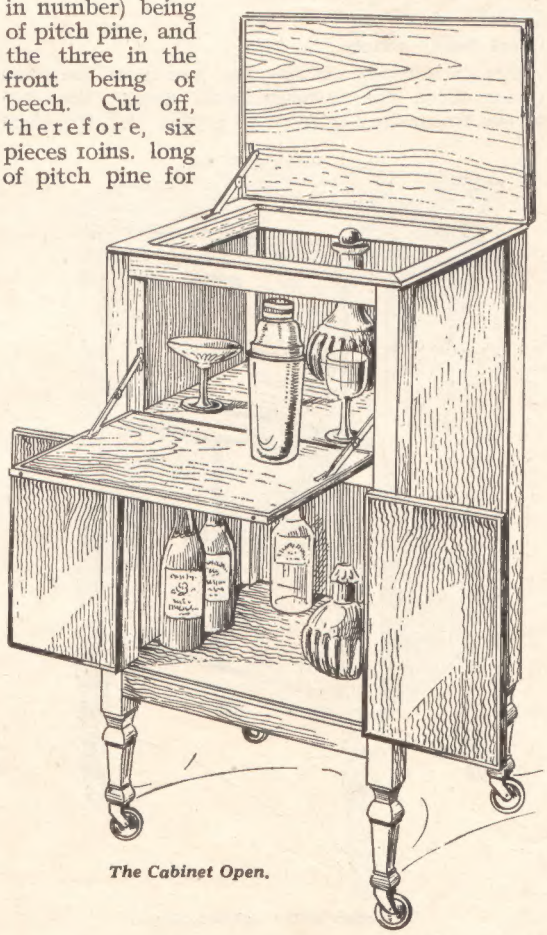
The preparation of the legs is the first consideration in commencing to make the cabinet, and these should be laid together on a bench or table with the shaped feet all evenly resting against a board. From the toe, measure up 2ft. 5½ins., square a line across, and trim off the waste wood with a tenon saw.

From this line set down the measurements as shown in Fig. 1, commencing with 1¼ins. which is the depth of the extreme top rails. Allow also this measurement for the intermediate rail and the lower one. Still keeping the legs evenly together, run lines across them all (Fig. 4) and continue the lines on all four sides of each leg.

In the centres of the rail divisions mark off with a cross where the dowels will come, being careful to note that the rails for the sides and the back of the cabinet are all placed on the inside of the grooves and that the three front rails are flush with the fronts of the legs. Reference to Fig. 2 clearly shows this as also does the diagram of the completed framing Fig. 3. The holes for the dowels should be made ½in. deep with a ¼in. twist bit, great care being taken in the boring to keep the brace perfectly upright.

The Rails

All the rails are cut from stuff 1¼ins. by ⅞in. thick, those round the inside of the cabinet (9 in number) being of pitch pine, and the three in the front being of beech. Cut off, therefore, six pieces 10ins. long of pitch pine for



The Cabinet Open.

Cocktail Cabinet—(*continued*)

the side rails, and three pieces 15ins. long for the back rails, and bore the holes for the dowels ½in. deep in the ends of all of them and into these fit and glue in the hardwood dowels allowing them to project beyond the face of the wood ⅜in.

Fig. 5 illustrates how the dowels appear before they are knocked into the legs, and it will be noted how the inside edge of each dowel is just chamfered slightly to make sure that when they are driven home they will not foul each other.

The three front rails are of beech, 15ins. long, and dowelled to the legs in a similar way to the other rails.

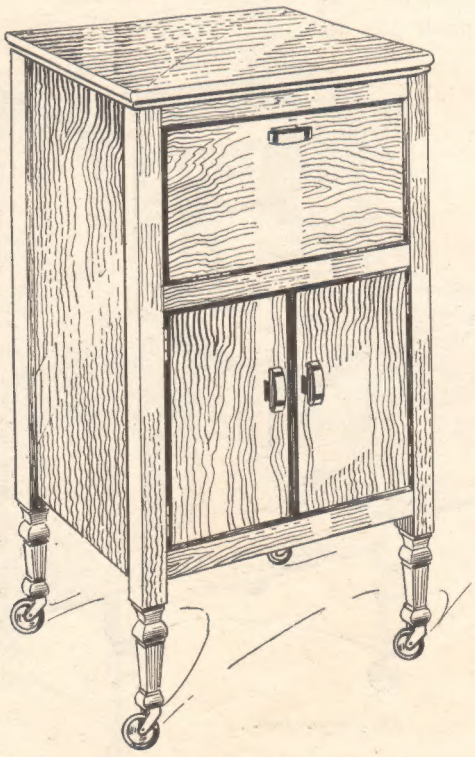
Assembly

In assembling the framework, first knock together each side pair of legs with the 10in. rails, then, resting these on the bench or table, insert the glued dowels of the longer rails and drive these in. Some triangular blocks of deal or pine glued into the angles (as shown in Fig. 3) help to strengthen the framework.

The panels of 3/16in. birch plywood are next prepared for the sides and the back. The former will be 2 feet long by 11ins. wide, the latter 2 feet by 16ins. Get them all cut square, and clean off any ragged edges so they will slide cleanly into the grooves of the legs.

Check before Fitting

Before actually cutting the panels to the sizes given check the measurements across the top of the framework, groove to groove, for the sizes of the legs may vary somewhat and thus throw the panels out.



A picture of the Cabinet Closed.

The top of the cabinet is finished around with an edging of ⅜in. thick beech, 1¾in. wide, mitred across the tops of the legs and screwed to the rails with brass screws countersunk.

The back and front pieces measure 18½ins. long, and the side pieces 13½ins. long. Here again it would be the better plan to check these sizes on the cabinet before cutting off the mitres.

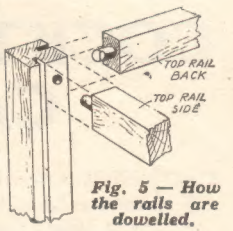


Fig. 5 — How the rails are dowelled.

Take note that these edging pieces are put on with their inside edges flush with the top rails of the cabinet, excepting the front piece which overhangs it slightly at the back. The section (Fig. 3) clearly shows this, whilst Fig. 6 shows these pieces in relation to the back and the floor. The latter is cut to size from ¼in. thick plywood.

Both floors are the same size and the same thickness and measure 16½ins. long by 11¾ins. wide. All four corners of the two pieces must be notched out to fit round the legs (see Fig. 6). The floors are screwed to the rails inside, but before this is done it should be noted that a full ⅜in. is allowed between the edges of them and the front rails so the doors and falling flap door fit in flush.

The Doors

The two lower doors and the flap door are similar in make and finish and each consist of plain pieces of ⅜in. good quality birch plywood. To form a neat edging to the doors and to cover the grain of the various layers of wood, pieces of prepared stripwood are mitred and screwed on as shown in the detail Fig. 7. Strips ½in. by ¼in. are used, and the mitres cut down the thickness of the stuff.

In taking the measurements for the doors, the height and width of the whole opening should first be taken and the latter then divided into two. From each of these measurements ½in. must be deducted, which will give the actual size of the ⅜in. pieces to be cut.

A Door Stop

The right-hand door (Fig. 1) shows the edging attached and the measurements to be taken. The flap door is done the same, all the measurements required for this being shown in Fig. 1.

Strips of ½in. by ¼in. wood are nailed along under the two front rails for the doors and flap door to slam against (Fig. 2). Cut shallow recesses in the doors and flaps for the hinges and insert in the top edges the ¼in. ball catches (No. 5480) from Hobbies.

The flap should also have two lid stays (No. 5495) The lift-up lid to the cabinet is again one solid piece, but of ⅜in. stuff finished around on three sides with ½in. half-round beading (No. 35). The size of the piece is 18¼ins. by 13ins. and it is hinged to the cabinet edging with 1½in. stout brass hinges.

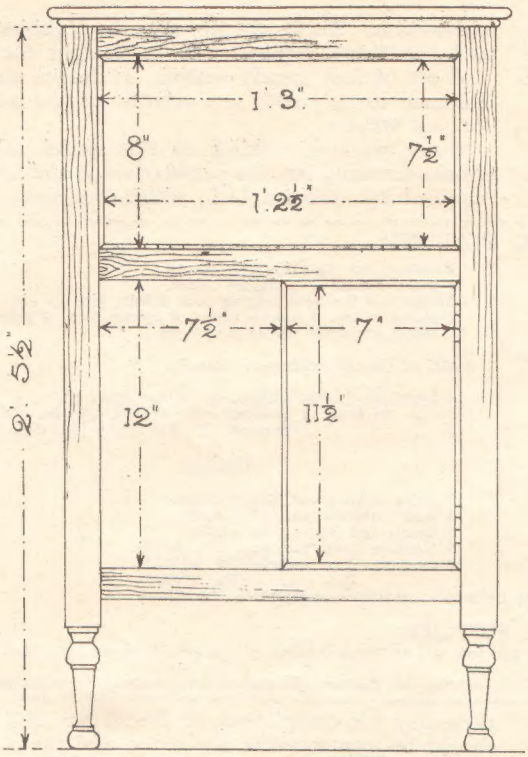


Fig. 1—A front elevation with useful dimensions.

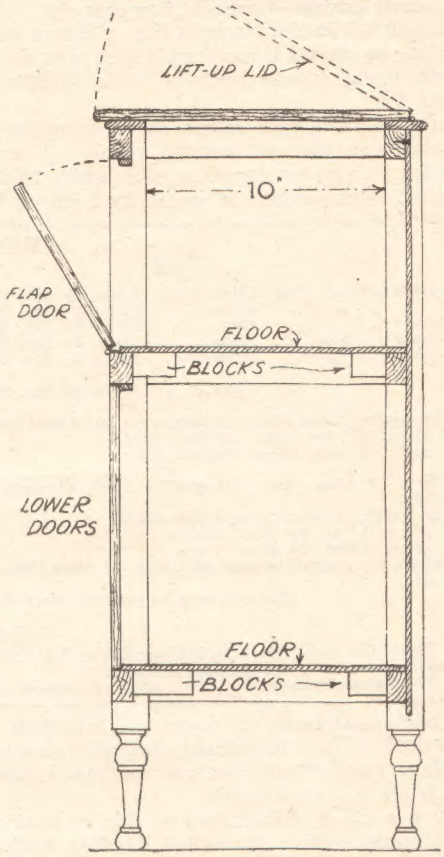


Fig. 2—A section through the side showing parts.

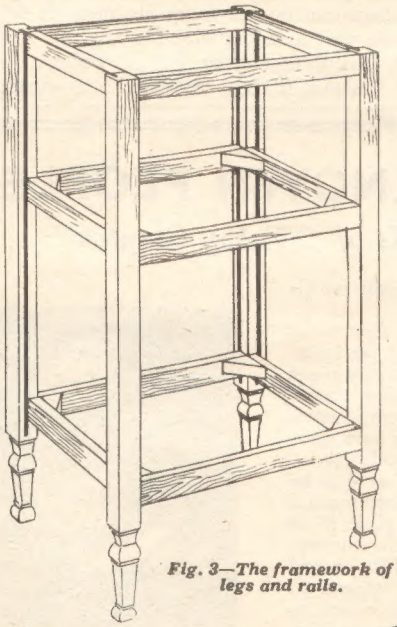


Fig. 3—The framework of legs and rails.

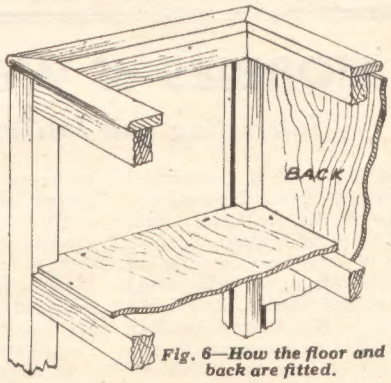


Fig. 6—How the floor and back are fitted.

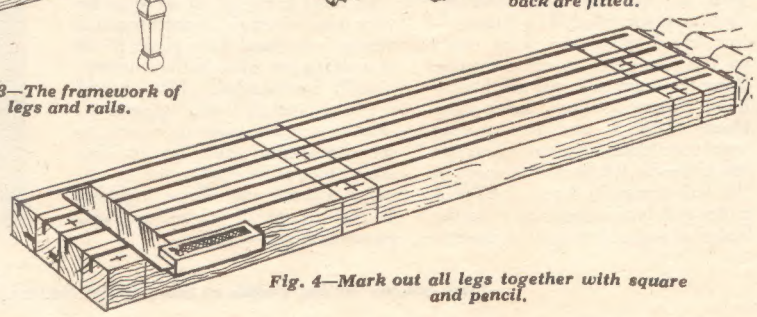


Fig. 4—Mark out all legs together with square and pencil.

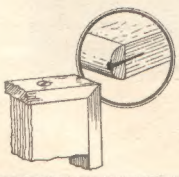


Fig. 7 Edging to the doors.

A Cocktail Cabinet—*(continued from page 532)*

The detail in the circle in Fig. 7 shows how the beading to the lid is fixed with long thin nails, the heads being filled carefully with plastic wood filling.

All the woodwork should be thoroughly glass-papered and then stained up evenly. It may be necessary to go over certain parts twice to darken it all the same tone. It would look rather well if the edging strips to the doors and flap were made very dark, in fact, blackened altogether so when the whole is polished an effective contrast is made to the front of the cabinet.

Such a piece of furniture as this certainly warrants some artistic decorative handles, and therefore, our choice falls upon those shown in the illustration. These are No. 6216 in Hobbies list and the three required can be bought for 1/6.

A set of four sturdy castors, as shown, may be obtained for 2/3 with 2in. wheels, or 3/3 per set for 3in. wheels.

Those workers making up this useful cabinet should certainly buy the parcel of wood and fittings supplied by Hobbies Ltd., which has everything necessary for completing it. Parcel No. T.M. 282 should be mentioned in the order, and the size of castors given, whether 2in. or 3in. wheels. Bottles of stain can be got from Hobbies at 6d. per small bottle and a larger size for 1/3.

A complete cutting list of wood and details of the various fittings required are given above.

MATERIAL REQUIRED

Wood

3 rails of Pitch Pine 15ins. long, 1¼ins. by ¾in. Back.
6 ,, ,, ,, ,, 10ins. ,, 1¼in. by ¾in. Sides.
1 rail ,, ,, ,, 18ins. ,, 2ins. by ¾in. Blocks.
3 rails ,, Beech, 15ins. ,, 1¼ins. by ¾in. Front.
2 pieces ,, 19ins. ,, 1¼ins. by ¾in. Front and back.
2 ,, 14ins. ,, 1¼ins. by ¾in. Sides.

1st quality Birch Plywood panels for sides and back—
2 pieces 2ft. by 11ins. 3/16in. thick.
1 piece 2ft. by 16ins. 3/16in. thick.

Floors—2 pieces ¼in. 1st quality Birch Plywood 17ins. by 12ins.
1st quality Birch Plywood ¾in. thick.
2 pieces 12ins. by 8ins. Doors.
1 piece 15ins. by 8ins. Flap.
1st quality Birch Plywood ¼in. thick.—1 piece 19ins. by 13ins. —Lid.

Beading No. 35—¼in. half-round.
1 piece 20ins. 2 pieces 14ins.
Stripwood for door edging and fillets, ¼in. by ¼in.
2 pieces 15ins. 4 pieces 12ins. 6 pieces 8ins. 2 pieces 15ins. as inside fillets for doors.

2ft. of ¼in. dowelling or dowels.

4 Legs (No. 535), (30ins. by 1¼ins. square).
2 ,, to have 2 grooves each 3/16in. by ¼in. deep.
2 ,, ,, ,, 1 groove ,, 3/16in. by ¼in. deep.

Fittings

3 pairs 1½in. stout Brass Hinges.
4 Ball Catches ¼in. (No. 5480).
3 Brass Lid Stays (No. 5495).
3 Handles (new pattern) (No. 6216).
4 Castors—2in. wheels (No. 6184).
3in. ,, (No. 6185).

The numbers in parenthesis indicate the reference numbers in Hobbies Handbook.

PARCEL SUPPLIED

The special parcel (No. T.M. 282) supplied by Hobbies Ltd., contains legs and all wood, beading, etc. as set out above. It costs 12/6 only, and is sent by rail (carriage forward).
The fittings shown cost 7/- if 2in. castors are supplied, and 8/- if 3in. are wanted. Postage is 9d. extra if sent separately from the wood

HOBBIES of WELL-KNOWN PEOPLE

Interesting and Intimate details of "Tubby Clayton"

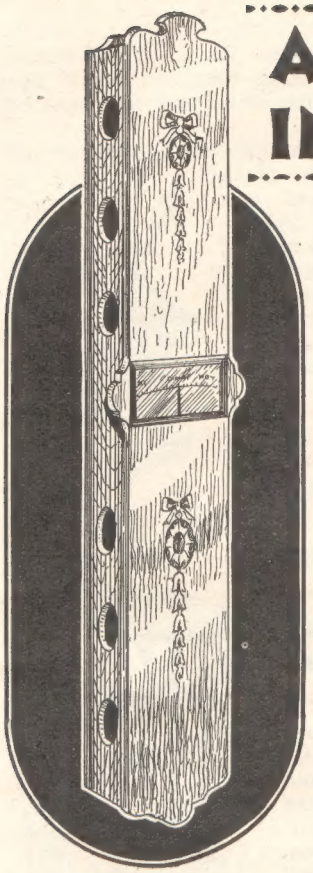
THE Rev. P. T. B. Clayton is a Master of Arts, a Companion of Honour, a Military Cross man, and Vicar of All Hallows, London. Plenty of other men could be all of these things but who could found an organisation like Toc H ? There is no Mrs. Clayton to share the delights which accrue to this world famous man but "Tubby" Clayton is surrounded by friends—from His Majesty the King down to the humblest ex-service man. Even the animals in the neighbourhood, where he lives, know him. Horse traffic is fast disappearing from the streets of London but the few that are left in the vicinity of the Tower seem to know the TocH padre and look expectantly for the lumps of sugar of which there seems to be an unending supply in his cassock pockets.

Tubby believes that there is no fun like work and as his particular form of labour means hours spent indoors, writing, planning, organising and thinking out new schemes it follows that he needs hard exercise to keep him physically fit.

In days gone by, he used to be very fond of tennis, swimming and boxing but these have given place to walking for miles in the country, usually bareheaded. Life aboard a tramp steamer also appeals to him as a good way in which to spend a holiday, but joys like this are only possible when he is not going round the world lighting Toc H lamps of friendliness and remembrance.—G.G.

Look out for further people in this popular feature !

A RELIABLE WEATHER INDICATOR TO MAKE



THOUGH the instrument depicted in the general view is of very simple construction, it is a reliable weather prophet. An instrument working on identical lines, though much more crudely constructed, made by the writer nearly four years ago, still works efficiently. The hygroscopic qualities of whipcord, making it contract during damp weather, is the motive power, and Fig. 1, a front view with the cover removed, shows how this power is applied to move the pointer over a scale.

From the dimensions (Fig. 1) cut the back from fretwood. Cut the sides and ends, and glue to the back to form a long, shallow box; this is the case. Fig. 2, is a side view from which it will be seen that the sides are cut 1/16ins. deep, so that the case, supposing the back to be 3/16in. thick, will be 1½ins. Note: the sides are provided with a series of oval holes to permit air to circulate in the interior.

Cut three blocks of wood from any scraps of fretwood handy, the size within limits being of no moment. These are for blocks A, B and C. Glue block A at the top part of the interior, and fit a small pulley to revolve easily on a screw. Glue block B at the right and about 4ins. from the bottom into this drive the two round-headed brass screws shown. Block C is glued at the bottom and supports the metal rocker.

A pattern for the rocker is given at Fig. 3 and should be cut from sheet brass and drilled where shown. It is then mounted on a screw, with a brass washer both sides, as seen in Fig. 4.

For the card dial cut a piece of white card and glue to a fretwood base. Inside the case glue each side a piece of fretwood, just where the dial will come so that when the latter is nailed thereto, the face of the dial will be just 1in. away from the back of the case (see Fig. 2).

For the pointer, cut a 12in. length of stiff wire, file one end to a point and solder the other to the centre of the rocker, as shown at Fig. 1. This should now be bent so that its pointed end moves across the dial without touching it. How to bend this wire will be gathered from a glance at Fig. 2 and Fig. 4. Now mark in black ink, a scale across the dial and letter it as shown.

Securing Tension

Procure about 4ft. of fine whipcord, and dry it thoroughly in a warm oven. One end of the cord should then be tied to the hole in the left of the

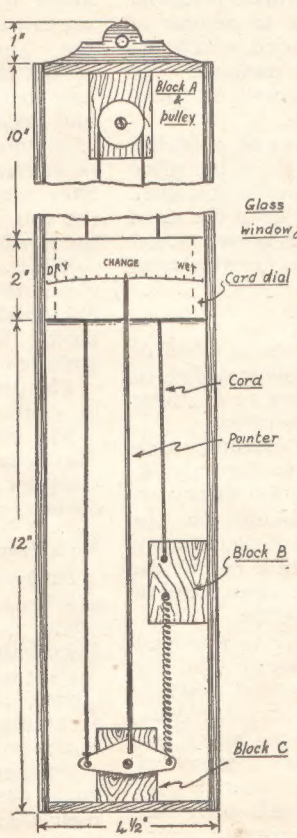


Fig. 1.—Looking at the inside "works"

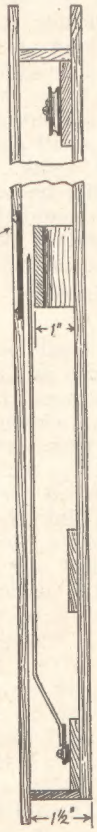


Fig. 2.—A side section.

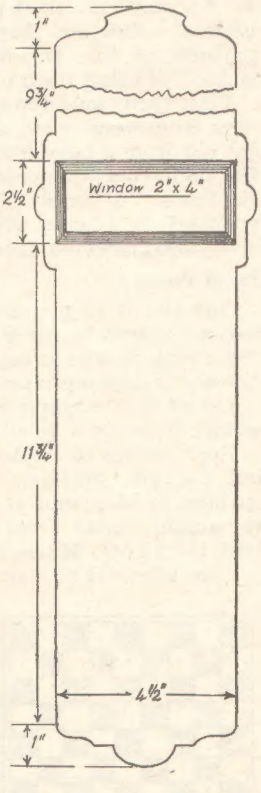


Fig. 5.—The layout of the front.

A Weather Indicator—*(continued)*

rocker, passed over the pulley, and tied to the top screw in block B.

A couple of feet of fine steel wire should then be wound tightly round a knitting needle to form a spring and stretched between the hole in the right hand side of the rocker and the bottom screw in block B. The tension should be enough to move the pointer over to DRY.

For the cover, cut one to the dimensions given at Fig. 5, from fretwood. Cut out the window opening, and at the back chisel out a rebate round the opening for the insertion of a piece of thin glass. This can be kept in place by gluing round the edges a strip of tape, or even brown paper.

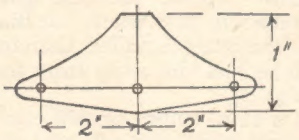


Fig. 3.—The rocker shape.

Before inserting the glass, bevel the edges of the window from the outside. The cover can then be screwed over, care being taken to see it does not press on the pointer, which must be permitted free movement.

The instrument can now be cleaned up and polished. The rather plain appearance of the front, can be much improved, by the addition of suitable transfers, as shown in the general view. The best place for hanging it is the hall or passage where it is more likely to get the natural weather temperatures.

It should be gently tapped, then the tendency of the pointer to move towards WET or DRY may be taken as a fair guide to coming weather.

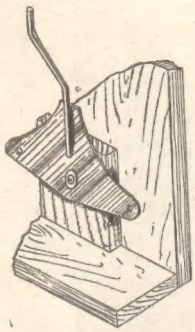
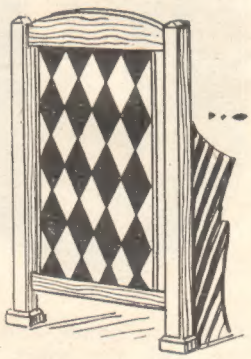


Fig. 4.—How to bend the wire.

USING WASTE WOOD



HOWEVER carefully the fretworker plans out his work, he inevitably has to dispose of countless small pieces of wood which are useless. But are they absolutely useless? The purpose of this article is to suggest an ideal method of using them to advantage.

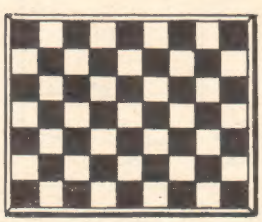
First then, save those small pieces of wood left over from your work, as waste. Even the piece cut out from a large interior fret may be suitable! For preference, the wood should all be of the same thickness. A good standard thickness would probably be 3/16in., which includes the thickness of plywood most commonly used.

Small Pieces

Our aim is to prepare small pieces of wood of various shapes to work into an all-over design to cover such articles as firescreens, trays, or anything else which contains a panel to be decorated.

Let us take a simple explanatory example. One wishes to make a small tray, and to decorate it.

From scraps of waste-wood 3/16 in. thick, cut out 63 1½in. squares. Paint or enamel on *one* surface, 32 black and 31 white. Leave them to dry (overnight) away from dust (e.g. in a biscuit tin with the lid on). Meanwhile, cut out a baseboard of 3/16in. plywood of a size 10⅞ by 13⅞ins.



The tray is provided with a rim of ⅜in. by ¾in. stripwood, consisting of 2 strips 10⅞ins. and two strips 13⅞ins. long; the corners of which are mitred. As the rim stands, of course, on its narrowest edge, let there be no mistake about which way they are mitred. Round off the top edges, and mount the strips on the baseboard with glue, and secure them from underneath with small countersunk screws. Now paint or enamel the rim and *bottom* of the baseboard black.

When everything is dry, the squares have to be glued into the tray, in a cheque pattern like a draughtsboard, noting that the corner squares are black. When the glue has set, we have a tray of striking appearance.

The panel of a firescreen looks very well if done in a similar way with diamond-shaped pieces.

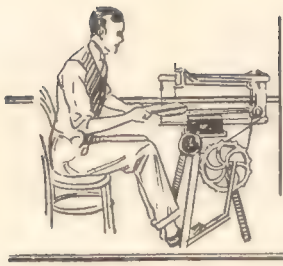
The two ideas given are practical suggestions. The keen worker will, no doubt, work out more complicated designs involving various shapes, and colours.

For a Tray

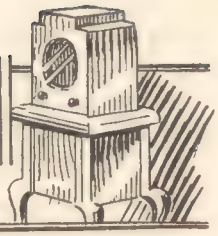
In the case of the tray, another excellent method is to leave 31 squares as whitewood and to stain the other 32 with oak or mahogany stain. After assembling the cheque pattern, treat the whole surface with Hobbies Lightning Polish or Fretwork Glaze. Naturally, in this case, the rim and bottom are stained oak or mahogany, and similarly polished as the surface.

Further, if the odd pieces of wood are of various kinds, then a design can be made with the woods in their natural colours, and the surface polished.

Stripwood, plywood for base and enamels are obtainable from Hobbies.



THE ART OF FRETWORK



A further chapter on Wood — Warping and Prevention—Natural Shrinkage — Stacking — Plywood — Choice of Wood, etc.

WE have already mentioned one or two points in connection with fretwood, but it is really a very vast subject and on this numerous books have been written.

Unless one is going to be a teacher, a professional cabinet maker or carpenter, however, the ordinary maker need not worry about the minor and many details of the subject.

He should, however, know several points which will be helpful not only in his actual work but in the saving of time and money.

Shrinkage of Wood

Trees grow differently in shape, texture and colour, but all have the same natural flow of sap. This sap is like the blood in our veins and serves to feed the tree when it is alive. When it is dead—or cut down—the flow of this life blood is stopped and in consequence dries up.

This accounts for the shrinkage which occurs in all wood when cut into logs. It is essential that the logs be allowed to dry naturally in the open for them to become properly seasoned, and it is one of the present troubles—it has been for some years—that wood is too often used before it should be.

This shrinkage cannot be prevented and will continue when the wood is used unless the proper period has been allowed for it to season. This season often takes many months, and no artifical heat can replace the proper stacking so air can pass between the boards.

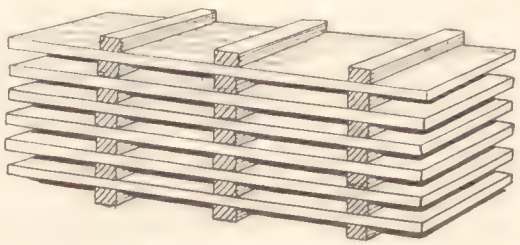


Fig. 1—How boards are stacked for seasoning.

Seasoning

An illustration is given at Fig. 1 of boards being naturally ventilated for seasoning, as they can be seen in the great drying sheds of Hobbies Ltd.

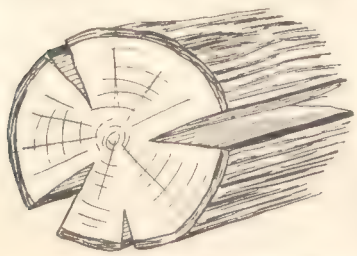


Fig. 2—How a tree shrinks and splits when dry.

At Fig. 2 we see how the natural shrinkage of a log tends to split the trunk because the annual rings give way. Most readers have seen trees split in this way.

To prevent it, the log can be sawn into planks, but even then the shrinkage goes on and the tendency is for the layers to warp, as is shown in Fig. 3.

It will be noted that the only board which has not curled one way or the other, is the one which runs through the centre. But obvious there is only one board which can be cut like this, and in consequence the outer ones are more liable to warp because they have no heart in them.

The outer rings are still more alive than those nearest the centre and in consequence are softer. This is the "sappy" wood which is cheaper and frequently unseasoned and one should beware of buying it.

A Board for Grain

An interesting detail of the section of a tree is given at Fig. 4, where we can see how a plank is cut to get the grain showing nicely.

Some wood is too hard to be used for ordinary fretsawing and other is too soft and pulpy. We have mentioned the popular kinds, and it is always wise to purchase as good a quality as one can afford. Obviously a cheap board will spoil the whole job if it starts to shrink and warp, harming joints in the work.

If warping does begin to occur it should be counteracted as much as possible. A special metal cramp is provided by Hobbies for this purpose (see Fig. 5) in which boards can be held down firmly until actually ready for use.

Another method of reducing the warp is to lay the board, hollow side down, on some damp shavings

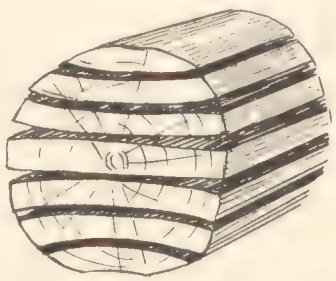


Fig. 3—How boards twist in shrinking when cut into planks.

and weight it down. The dampness will pass into the wood and swell the underside, thus tending to straighten it.

Yet another method is to stand the board with the convex side to the light in order to counteract the warp.

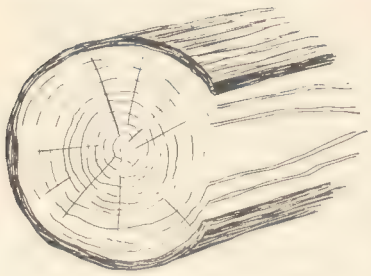


Fig. 4—Plank cut, showing grain.

Fretwood is usually sold at so much per square foot and is obtainable in various widths. The greater the width the more expensive it is, so if narrow work is being done, do not buy wide boards. Remember, too, that all trees do not grow large in girth so certain boards cannot be bought more than 9ins. or 10ins. wide.

Do not, therefore, undertake a piece of work and then find you cannot get wood wide enough to do certain parts of it.

A square foot, of course, is 144 square inches made up of the length multiplied by the width. Thus the simple size of 12ins. square (12ins. multiplied by 12ins.) is a square foot. But then so are several other dimensions and at Fig. 6 we give the comparative areas and sizes which all go to make a square foot.

State a Size

It is therefore useless to order just "a square foot" of wood. You may get a piece 24ins. by 6ins., whereas you wanted one 12ins. by 12ins. In ordering, therefore, state your dimensions of both length and breadth.

If, too, you keep a store of wood by you remember to keep it flat and in a dry place. Do not lean it against the wall where it may warp or curl. Stack it as shown in Fig. 1, put narrow strips between each board.

Or lay all boards flat together and keep them flat by means of a weight or cramping them together.

Plywood

Plywood is now so popular that we cannot close this chapter without a word on it. It has come into general use recently because of its cheapness and the very handsome outer layers which are now added. Plywood is obtainable in almost any thickness from 1mm. (just under 1/16in.) to 1in. thick, being made up of several layers all glued strongly together. These layers vary from three upwards.

Plywood has the disadvantage of an unsightly edge, and can never, for this reason, supersede fretwood. It has the advantage, however, of being obtainable in large panels—so much as 5 to 6ft. square—and is useful for backing in cabinets, bottoms to drawers, or backboards for doors.

In these instances plywood can reasonably be used, but the good fretworker will not be content to use it in his main work.

Inferior Layers

Moreover, very often, whilst the outer boards look good and solid, the interior layers are often of very inferior stuff, badly glued, and full of shakes. In consequence when parts are cut out for fretwork these inside layers fall to pieces and make an unsightly and often useless piece of work.

Thus, if you must use plywood get as good a quality as you can. That sold by Hobbies is sepcially selected as being suitable for fretwork and can be relied upon to be well layered throughout.

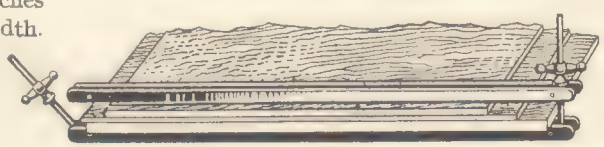


Fig. 5—A useful cramp to overcome warping.

Difference to Note

It must be remembered that fretwood is what is called a fancy wood. It has more grain, more natural beauty than the ordinary cheap wood which is used in packing cases.

Most towns have agents of Hobbies Ltd., where this wood can be obtained and the worker should make himself known here in order to become conversant with various grades, styles, etc.

There is, of course, a big difference in the texture of wood. Some is quite tough to cut with the fretsaw, whilst the other is quite soft.

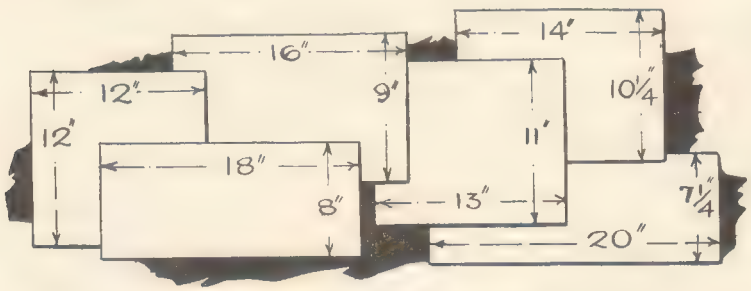
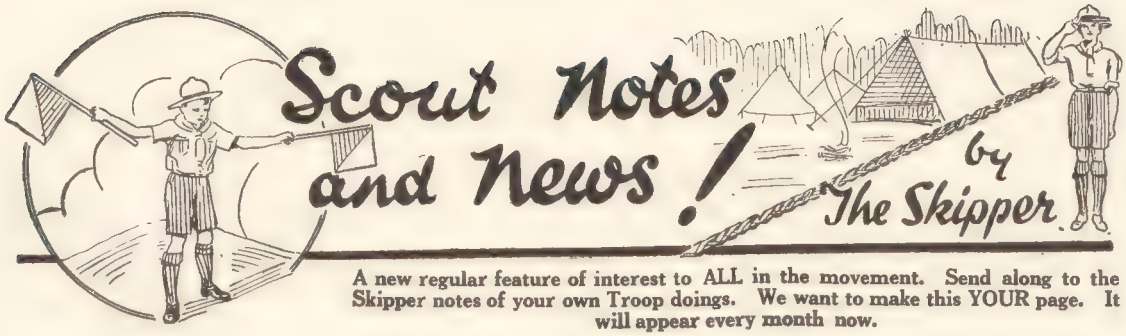


Fig. 6—All the sizes shown above are one square foot of wood.

Wood for Models

Beech, for instance, is naturally a very tough wood and is particulary suitable for models. Holly or sycamore are also a very close grained timber which lends itself to shaping. On the other hand, open grained oak or padouk should not be used in thin wood where there is a lot of fretwork to be taken out.

(To be continued)



Scout Notes and News!

by The Skipper

A new regular feature of interest to ALL in the movement. Send along to the Skipper notes of your own Troop doings. We want to make this YOUR page. It will appear every month now.

CHEERIO Scouts! At last we are to have our own monthly notes in "Hobbies Weekly" where all those latent ideas, all those Scouty things we have done and are doing can be recorded, so do not forget in future to send me your Scout news, the success of your latest hobbies, your camps, and all activities which may be of interest to others as well as yourselves.

* * *

ISN'T it about time you began thinking of camps, both week-end and the annual summer camp? Remember a penny or two saved weekly will soon mount up to a goodly sum with which to pay for your camping.

* * *

AND how about getting the tents out now and doing some of those repairs? All those guy ropes you tripped over and broke! And that hole in the store tent where 'Biffer' whizzed a tent peg through (quite by accident, of course!)? Now is the time to overhaul those cooking utensils and couldn't you think of a few more gadgets for the camp kitchen?

I am sure the visiting Commissioner would appreciate something more than the usual knife and fork rack, plate rack and mug tree, which is about all you see in many camp kitchens.

* * *

I HAVE just been reading of a Scout Troop in a hospital in Canada, where in spite of various handicaps, a fine scouty set of boys are actively engaged in badge work and other Scout Activities. The Group motto is "Cheerio," and that word is your greeting as you step into the hospital ward and a benediction when you leave.

How it expresses the plucky spirit that enables a sick or crippled boy to smile! It certainly reveals something of their interpretation of the eighth Scout Law.

I WONDER how many of my Scouter readers who belong to a crew have noticed the new rule about uniforms which runs as follows:—No part of the Rover uniform and no Rover badges may be worn with, or added to, the uniform of a Scouter, except that a Scouter (other than a Commissioner) who is also a Rover, may wear at all times with his uniform as a Scouter (except on a tunic) the green shoulder straps.

Well, that's that, but it is nice to know what should be worn; although some Scouters unfortunately do not always comply with the rules.

* * *

WE shall be getting ready soon for the Royal Silver Jubilee Celebrations and the Chief Scout has expressed a wish that every Scout should take part. Huge bonfires are to be lighted simultaneously at 10 p.m. from specially selected sites and they should make an impressionable spectacle as well as a worthy demonstration of the loyalty and affection of the Scout movement for our King and Queen.

Rockets firing green, red and yellow stars (our Scout Group colours) will be fired as each bonfire is lighted.

What a fine competition it would make for Patrols to compete in collecting the materials for the fire; the winning patrol to have the honour of lighting the fire and exploding the rocket. Do not forget it must be a group show and that Cubs and Rovers are also expected to help. Rockets will be obtainable from County Headquarters, price 3/- each.

A thought on Scout Law No. 1

"Mine Honour is my life—both grow in one.
Take Honour from me and my life is done."

NOW for a story for Second-class Scouts. There was once a blacksmith who thought he would go to a technical school and learn something of the scientific value of metals, he interviewed the master who said "Come along tomorrow night and bring a notebook and pencil with you. "What for?" asked the blacksmith. "So that you can jot down anything you want to remember," said the master. "And what's me blessed head for?" rejoined the smith.

Moral.—A notebook and pencil are useful but a good memory is still better, and that is why you ought to practice Kim's games as much as possible. Remember, a Scout must have a good memory and a sharp eye if he wants to travel far along the road to First-Class.

* * *

WHY not have a really good try for the first-class badge this year? It is much easier than you think once you have started and if I can help you in any way it will give me great pleasure. Here's a tip from an "old 'un" about the estimation test.

Do try and estimate fairly the distances, numbers, heights and weights required. So many Scouts fail because they guess. Quiet, persistent practice will soon make you confident and you will be surprised to find how easy it is. Above all things, do get out of that Tenderfoot or Second-Class rut.

* * *

SOME of those toys and books you had for Christmas are going out of favour now or some may have got broken. Do not throw them away, but keep them and use them for a fine Troop good-turn for next Xmas.

How many poor boys and girls there are who would appreciate those toys after they have been repaired in your Troop-room, and think of the joy you will obtain in playing Father Christmas to those less fortunate than yourselves.

See Design Chart No. No. 2054 for full size drawings

MODEL ELECTRIC

A "TITAN" is one of the largest types of crane and is chiefly used in harbour construction and civil engineering work generally. The model now to be described follows the general lines of these cranes, and as can be judged from Fig. 1 presents a most attractive appearance.

The real Titan crane has a large carriage or truck mounted on a number of wheels running on a wide gauge railway. When harbour building, the railway is laid on the breakwater, and the crane is used to raise the huge 50-ton blocks of solid concrete and place them in position.

Tower and Jib

To enable this to be done, the crane proper—which consists of an immense double latticed girder often 100 feet in length—is mounted on a roller turntable on top of the truck. A steam engine or electric motor is fixed at one end of the girder or "jib" and provides the needful power to "slew" or rotate the jib—also to raise and lower the load and move it backwards and forwards.

On top of the jib is a railway on which can be moved a truck called the "hoisting carriage," which has on it a number of pulley wheels which guide the ropes used to manipulate it and the load.

The model reproduces all these movements and is thus able to lift weights and move them into any position entirely by operating the control switch and levers.

The Electric Power

Electricity is recommended for this model—a "Trix" No. 2051 electric motor as those sold by Hobbies Ltd., and costing only 2/6, will answer very well and can be supplied with current from a flashlamp battery or a small accumulator. Alternatively, a small "Bowman" steam engine with reverse gear could be used; or a clockwork motor could be made use of if fitted with reversing gear.

Finally, it may be mentioned that the crane can be worked by hand if a suitable crank handle is provided to rotate the main driving spindle or to turn the winding drums directly.

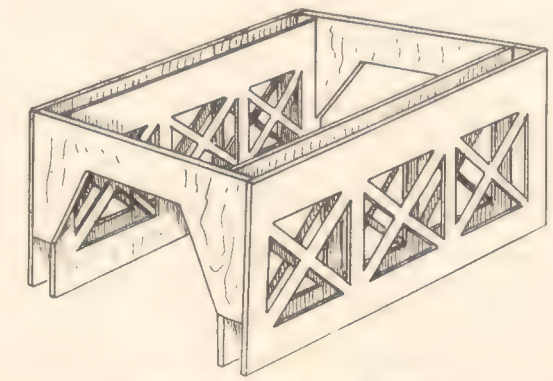


Fig 7—The truck portion assembled.

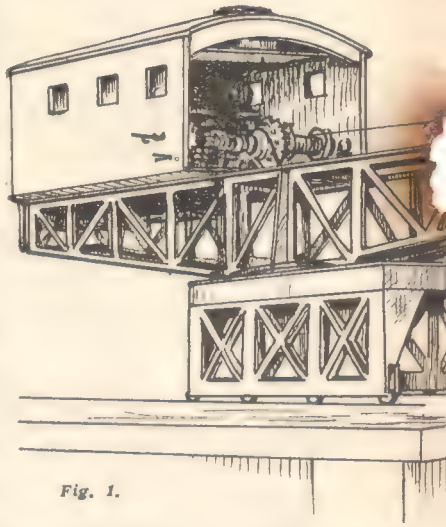


Fig. 1.

The electric drive is described in this article because it is the best and most convenient form of motive power, but any of the suggested alternatives can be adapted quite easily, as the steam engine or clockwork motor have merely to be substituted for the electric motor.

Materials Required

The bulk of the model can be made from plywood about 3/32in. thick, and various sizes of Stripwood all of which is obtainable from Hobbies Ltd. The materials given comprise a list of suitable material and allow a margin for waste and cutting.

MATERIALS

Jib.—2 pieces 3-plywood 3 m[m] thick, 16½ins. long, 2½ins. wide.
Jib. Rails.—2 pieces ¼×¼×16in. long.
2 pieces 15½ins. long, ¼×¼in. stripwood.
Cab.—3/32in. fretwood or 3-ply. 2 pieces 2½×5in., 1 piece 3½×3½in., 1 piece 5½×3½in., 1 piece 5½×3½in. 1 piece 3½×3in., 1 piece 3½×1in.
Truck.—3/32in. plywood, 1 piece 15×4½ins., 1 piece ½×½×7ins.
Winding Carriage.—1 piece satin walnut, 2½×1×½in.
Turntable.—3/32in. plywood, 1 piece 3½×12in.
Stripwood.—2 pieces, ¼in. square, 12ins. long. 2 pieces ½×½×9ins.. 2 pieces ½×½×4½ins.
Divisions, Ends and Sundries.—3/32in. Plywood, 3½×12ins.

A special parcel of wood for all the [above] Ltd. for 1/6 or sent (post free) for 2/-, for 1d. Ask for parcel No. 2054. T[his] locally, or suitable addresses will

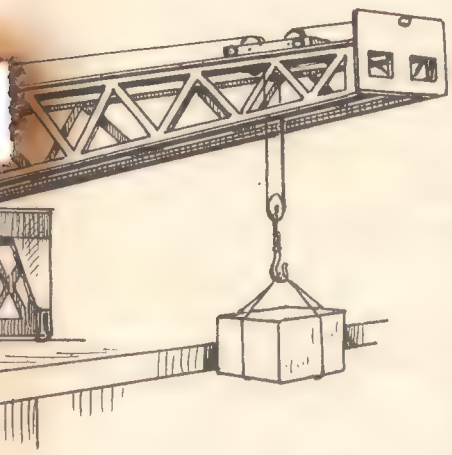
The three "Trix" sets of components provide all the various parts required for the gearing, shafts and so forth; there are a number of pieces that will not be required for this model but they can be used for other purposes, or as parts for the crane to lift.

Separate "Trix" parts are *not* supplied, they can only be had in sets as specified. Actually, the cost of these sets is less than it would cost to buy separate pieces of other make.

Commence by making the jib, which is best cut out with a fretsaw. The shape is clearly shown on the working drawings Fig. 2, and need only be

C "TITAN" CRANE

The Fig. details not shown here are on the Sheet.



drawn on one of the pieces as both can be fastened together and cut at the same time.

Clean up all the sawnedges then cut out the centre division piece, and thebottom plate. Drill the holes in the bottom plate as shown in Fig. 3 then fasten these parts together with glue and pins, taking care to have the projecting lug on the left of the jib as seen from the front. Next glue on the two top railways strips noting that they overhang only about 1/16in. on the outsides but overhang much more on the insides.

REQUIRED

Driving Gear.—1 "Trix" No. 2051 Electric motor, 2/6. 1 "Trix" Gear Set, price 1/-; 1 "Trix" Set No. 2, price 1/-; 1 Trix Set, No. 2A, price 6d.
Pulley Wheels.—8 7/16in. diam. Bassett Lowke Ltd.
Dowel Rod.—1 piece ¼in. diam., 2ins. long. 1 piece ⅛in. diam., 2ins.long
Spring Band.—2 pieces, 24ins. long, 1/16in. diam. Bassett Lowke Ltd.
Switch. 1 on-off and reverse switch. No. 1427/7, Bassett Lowke Ltd.
1 pocket flashlamp battery, "Ever-Ready" No. 1289, 4½-volt.
1 piece 1/16in. diam. brass wire 12ins long.
1 small piece tinplate.
1 packet "Hobbies" ⅛in. fretwork pins.
1 tin dark grey enamel paint.

Parts required is supplied by Hobbies Suitable brass wire is also obtainable The other materials should be obtained be supplied on request to the Editor.

These are shown in Fig. 4 which illustrates the jib practically completed, next add the front andback end pieces, which should be shaped with a fretsaw and neatly cleaned up on all edges with fine sandpaper, then add the shelf for the motor to stand on as shown in Fig. 2.

Next glue on the two strips of ⅛in. square stripwood placing these near the inner edges of the top strips on the jib. These narrow slips act as the rails and guide the wheels of the winding carriage.

Cut and fix the special brackets for the travelling jockey pulleys, as shown in Fig. 5, these are glued to the left hand side of the jib as seen from the front end and are needed to guide the traveller or "derricking" rope from the driving pulley to the winding carriage. If these guide pulleys were omitted, the rope would incline upwards and raise the carriage off the rails.

The jib should now be completed by gluing the flange strips to the under edges—as shown in section Fig. 6 and the two central triangular shaped bracing webs then glued in place between the bottom plate and the sides of the jib, on the outside.

Give the jib a coat of grey paint inside and out, and while this is drying proceed with the truck and turntable. The truck is sawn out with a fretsaw in the same way as the jib, to represent a braced steel structure and consists of double side pieces, with sufficient gap to accommodate the four wheels on each side. The ends are simple pieces which fit flush against the outer side pieces. The inner side pieces are cut back to clear the ends and the whole is glued and pinned together as shown in Fig. 7 without the top plate.

Truck and Turntable

The top plate of the truck is a simple rectangle and overhangs the sides and ends by 1/16in. all round; it is glued and pinned in place.

To the top centre of the truck is fixed the turntable pulley which measures 2⅞ins. diameter and is made by cutting two discs with steeply bevelled edges. The discs are glued and pinned together with bevelled edges in the middle, as in Fig. 8. thus forming the pulley. After the truck wheels have been fixed by short pieces of wire, or screws, driven through the pair of side pieces; the truck should be painted and when dry, the jib is fixed to it by a screw driven through the centre of the turntable pulley. It pays to be rather careful with this part of the work to ensure that the jib turns perfectly freely and that it rotates truly around the pulley. Any little inequalities should be corrected by carefully sandpapering the pulley.

Winding Gear

The truck wheels and those for the winding carriage are made by cutting off pieces of dowel

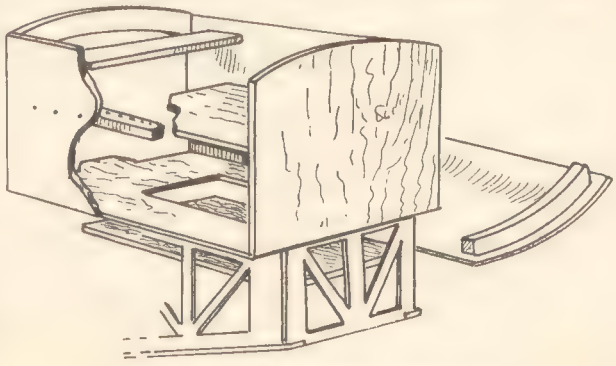


Fig. 9—Cut-away view of the cab and roof.

rod, the truck wheels are ⅜in. diam., ⅛in. thick, the carriage wheels, ¼in. diam. 5/32in. thick with a ⅜in. diam. disc of plywood glued on one side to act as a flange.

The winding carriage is quite simple—it is a plain piece of wood with two slots cut in it as shown in the working drawings, but note that the back slot is at a slight angle to ensure that the winding rope leads easily on to the winding drum.

The two 7/16in. diam. pulleys are fixed on wire axles fitted into holes drilled through the wood. The four flanged wheels can be similarly fixed or can be mounted on nails or small screws. Fix three of these wheels, then put the carriage on the rails and while holding it firm and flat place the other wheel in position and then fix it; this ensures that all four wheels will sit evenly on the rails.

Engine House Parts

A small peg or screw size is fixed beneath the carriage on one side to take the derricking rope. A small guide loop or staple of wire is fixed at the top front to guide the winding rope to minimise the risk of its coming off the pulley.

Paint the carriage and then proceed to make the engine house and winding and control gear.

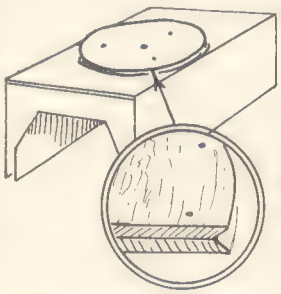


Fig. 8—The turntable on the truck, with a detail section of the pulley.

The parts for the engine house are quite simple, and consist of the floor or bottom, the two sides, the fixed back, and one shelf for the battery, which rests on bearers and is located above the motor. There is one fixed crossbar near the top to which the reversing switch is fixed.

The top is separate and can be fixed with screws so that it can easily be removed or it can be fixed to small shaped blocks and arranged to lift off.

Test before Fixing

All these parts should be prepared and fitted together but should not be fashioned until the motor and winding gear has been made and fitted, as shown in Fig. 9 where all the parts of the cab are illustrated. The dimensions and exact positions of these pieces are given in the working drawings Fig. 2, but note that the motor shelf is fixed between the sides of the jib, the floor of the cab being cut out to clear the motor. The battery shelf is loose and rests on strips of wood fixed to the cab sides. It gives access to the motor, the cab roof is removed, the battery lifted out and the battery shelf raised.

To assemble the motor and gears, first fix the floor of the cab to the end of the jib, as shown in the drawings, then insert the motor through the hole and fix it to the lower platform with slips of wood at each side which should just grip the sides of the "Trix" motor frame.

Next assemble the worm drive as described and illustrated in the "Trix" instruction book and also as shown in the various drawings in this article.

Place it at the front centre of the cab floor and see that it "lines up" with the motor spindle. Lining up means to set the worm spindle exactly in line with the motor spindle; if necessary insert a slip of card beneath the motor or the worm drive to ensure absolutely correct alignment.

Main Bearings

Next fix two uprights of metal (Fig. 10) to act as the main bearings for the cross shaft. These pieces can be taken from the "Trix" sets and are bolted or screwed to the cabin floor. Take the 20 tooth "Trix" gear wheel with the boss on it and fix it to the centre of the cross shaft so that it meshes nicely.

Fix into one of the outer ring of holes on this wheel a short piece of screwed rod and put a nut and washer at each end of shaft to prevent endways motion.

Give the motor a trial run to make sure that the worm gear works properly, make any needful adjustment and apply a spot of lubricating oil to all moving parts.

Next make the drum for the winding gear, as shown in Fig. 11, this is a 1 in. length of ⅜in. dowel rod, with a thin plywood disc at each end, a hole is drilled through the centre so that the drum can turn freely on the shaft. Cut a notch in one disc so that when pressed towards the main gear, the notch engages the pin fixed thereon. This acts as a "clutch" and the pin should be only long enough to go into the slot when the drum is pressed towards the gear, but when the drum is pulled back it misses the pin and is not driven by it. The arrangement of this drum and the very light spring used to push it towards the gear, is clearly shown in Fig. 12, as well as the derricking pulley gear.

To make the derricking gear, rivet or solder a 7/16in. diam. pulley to the 20-tooth "Trix" wheel which is not fitted with a boss. Arrange this to slide along the shaft so that when pushed towards the main gear the pin thereon engages a hole in the "Trix" gear.

(To be Continued)

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ALL WITH ONE BLADE!

Mr. E. V. Hughes, Co. Armagh, writes: —"I have just completed the model of the Lord Mayor's Coach, a smoker's table, model altar, pipe rack, model aeroplane, letter rack and the "Home Shrine"—all with one blade, which is still intact. I think this is a pretty good record for a beginner."

HOBBIES BRITISH FRETSAWS

HOME CHEMISTRY

THE CARE OF APPARATUS

—and some unusually interesting experiments you can perform.

A few hints on the care of apparatus in general will not be out of place, we are sure you already know that success in chemical work is so very largely dependent upon strict order, cleanliness and that haphazard methods are fatal. You should always use an apron to protect your clothing ; its cheaper for your folks to buy you a yard or so of material, in case of an accident, than it is for them to supply you with a new suit !

Do not stint the use of a duster. You know well enough that many of the substances you use are powerful enough to do considerable damage ; so a little forethought may prevent disaster. Always keep bottles, and all glassware, whether flasks, retorts, or merely tubing, spotlessly clean.

Apparatus for obtaining precipitate of sodium chloride, as explained.

Bad Smells !

And do not throw doubtful liquids carelessly into the sink. Half-a-second more of your time may prevent you and the family having a violent argument as to what does, and what does not, constitute a bad smell !

How many of you have a set of scales and weights? Not many, possibly, but if you can manage to pick up a set at a reasonable price, take advantage of the opportunity, for they are always useful. Alternatively, make some for yourself as described very fully in these pages.

Remember always to put the balance in order after use and return the weights to their proper places ; otherwise you will always be unable to find just the weight you require.

The creeping dye experiment.

Have a good look at your Bunsen. You have probably used it month after month without giving a thought to the fact that, like your bicycle, it needs occasional attention. Unscrew the barrel of the burner and examine each part. The nipple may be sooted up; give it a clean, for the success of a great many chemical experiments depends largely upon the use of the correct sort of flame.

A normal Bunsen flame should extend up to about 20 centimetres above the top of the barrel, and the only part that should be coloured is a small portion near the top of the flame.

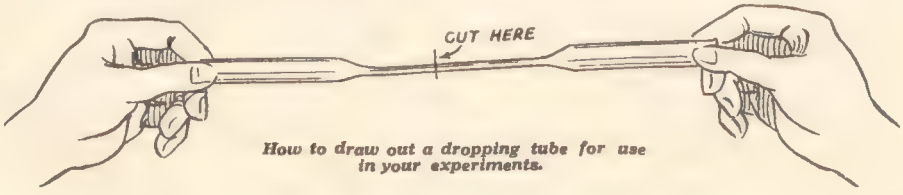
Glass-working forms an important part of your activities. You know that it is an easy matter to cut glass tubing by making a sharp scratch with a triangular file and then breaking. But do not leave it at that. Rotate the uneven edges (which are sharp enough to cut your fingers and the rubber connections that you will use) in the Bunsen flame. This will have the effect of polishing the edges.

Bending Glass

To bend glass tubing, hold it lengthwise in the upper part of the flame, firmly grasped between the thumb and fingers of each hand, and rotate it slowly backwards and forwards so as to secure uniform heating. Then, when the tube is sufficiently soft, remove it from the flame and bend it carefully to the desired angle. Do not lay it immediately on a cold surface, otherwise the glass will crack.

Drawn Glass

It is very interesting to " draw out " a small-bore glass tube. Take a length of ordinary tubing and heat it at one spot until the glass at that spot is perfectly soft. Rotate the tube while you are doing this ; but keep your hands the same distance apart. Then, when you consider that the " hot spot " is hot enough, remove the flame and gently



How to draw out a dropping tube for use in your experiments.

pull the two ends of the tube away from each other, turning it the while.

You will thus have a length of tubing shaped as shown in the sketch, and if you cut this in the centre and round the edges off you will have two useful dropping-tubes, invaluable when you wish to add a liquid drop by drop.

Now let's get down for a moment to one or two interesting experiments that you can carry out in connection with precipitates.

A precipitate is, of course, the solid that rather mysteriously appears when certain perfectly clear solutions are mixed together. The subject forms quite a fascinating study, and a number of experiments may be performed in which only cheap chemicals are required, many of them being common household commodities.

Apparatus

For instance, you can prepare a precipitate of common salt to commence with. You will require for the experiment a fair-sized test tube fitted with a bored cork, an angle-shaped piece of glass tubing, a thistle funnel, a small length of rubber tubing, a glass dish, and your Bunsen. The way in which these are fitted up is clearly shown in the sketch.

Into the glass dish place a solution of salt which has been prepared by dissolving as much salt as possible in half a test tube full of water, and running off the surplus liquid after the solution has been allowed to cool. The end of the thistle funnel is allowed to drop just below the surface of the solution.

Into the test tube place a mixture of salt and sodium bisulphate. Heat the test tube gently with the flame from your Bunsen, and in a very short time hydrochloric acid gas will be given off and will find its way down the tubing into the salt solution. Almost immediately the salt will be precipitated and will come away in the form of tiny white particles.

With the aid of lead nitrate several interesting experiments may be carried out. Here are three of them.

Take some lead nitrate crystals and dissolve them in a test tube three parts full of water. Divide the solution into three equal parts. To the first add a solution of washing soda, which is chemically known as sodium carbonate.

There will now be formed a very dense white precipitate which is really a form of lead carbonate. This is what painters know so well as white lead.

To the second part add a solution of common salt. Again a white precipitate will be formed. This we know as lead, chloride. If the liquid is heated, the precipitate gradually disappears, but on being allowed to cool it returns in the form of attractive white crystals.

To the last part add a few drops of potassium iodide. This time, instead of getting a white precipitate, one which is a bright yellow in colour will be obtained, namely lead iodide.

An Unusual Experiment

An unusal experiment, lasting over several days, may be carried out in the following manner. Procure about half an ounce of gelatine, place it in a basin and pour over it about nine ounces of water. Stir it well with a glass rod and the gelatine will quickly dissolve, forming itself into something resembling a jelly.

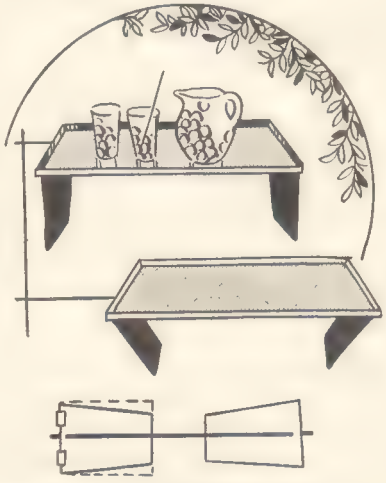
Before this jelly is allowed to cool, take four or five very small crystals of sodium ferrocyanide and place them in a dry test tube. Now pour in some of the warm gelatine until the test tube is a little more than half full, and place it on one side until it is quite set.

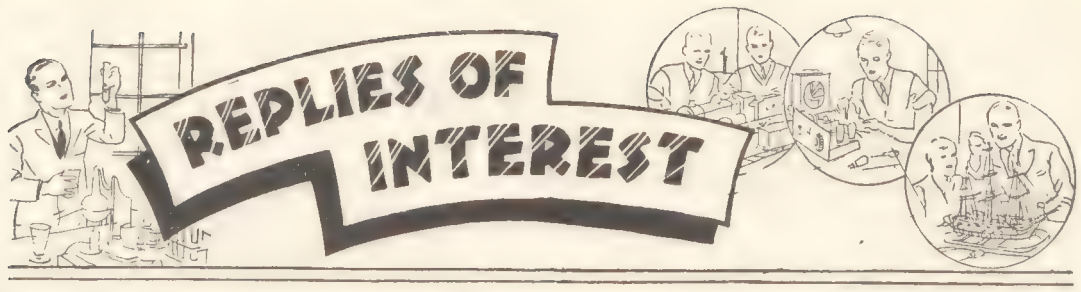
When it is perfectly cool and firm, dissolve a pinch of iron alum in a little water at the bottom of a test tube. The result will be a clear liquid. Pour this liquid gently into the original test tube containing the gelatine and place it again aside.

Slowly but surely the iron alum will work its way through until it comes into contact with the sodium ferrocyanide.

A Table from a Tray

IT is not difficult to convert an ordinary tray into a little standing table by using two flaps cut from a straight piece of wood, as shown in the diagram. These two legs are fixed by two hinges on either side. If the table is required to remain permanently stationary then it is an easy matter to glue a small block of wood on each side between the two hinges so that the flaps remain solid and firm—as for a bed table for an invalid. If, however, the table is wanted to be used sometimes as a tray then the legs must be made with hinges to allow them to fold back, and a small rod can be inserted right through, boring holes between the two hinges. This will make it stand firm. Small screw knobs can be used for the ends, or a piece of cork so that there is no danger of the rod slipping through one of the holes. The ends of the rod must not, of course, show outside the edge of the tray. The rod can be quickly removed if the tray has to be stood on a shelf or up against the wall. The legs can be painted to match the tray, or in some contrasting colour, painting the rim of the tray to match. Say, for instance, the tray is scarlet, then paint the legs black and the edge of the tray to match.





Renewing Billiard Table Edging

IS there any method of re-conditioning the rubber cushions of a billiard table?—(S.W.)

ONCE the rubber cushions of a billiard table are deteriorated, and perished, there is no method of satisfactorily restoring their resilience.

Soap and Hair Oil

I am anxious to experiment in making soap and hair oil, but do not know any recipes. Could you possibly give me some information?—(J.W.)

THERE are dozens of kinds of hair oil, many of which are merely pure paraffin scented, but here is the recipe for one of the best—Macassar Oil :—

Oil of almonds, coloured by alkāline root—1 pint.
Oil of rosemary and origanum of each—60 drops.
Oil of nutmeg and otto of roses of each—15 drops.
Neroli—6 drops.
Essence of Musk—3 drops.
Mix thoroughly.

The same remark applies to soap, but the best hard white soap is made from soda, ley and tallow. The fat is melted at gentle heat, and the ley added, continually stirring. Add salt, and skim the surface which is, of course, the hot soap. Cool in a wooden box and when quite cold cut into bars with a copper wire. If you scent this, and add either burnt sugar or brown umber, you have brown Windsor soap ; if you mix a little glycerine you have what is known as glycerine soap. Any perfumes added will give you the toilet soap effect.

Preparation of Ether

CAN you give me the formula and preparation of ether and alcohol? What is meant by wood alcohol and denatured alcohol?—(R.F.)

ETHER is prepared by distilling alcohol with sulphuric acid, the quantities depending upon what you propose to do with it. For medicinal purposes it is prepared from pure alcohol but for ordinary commercial use from methylated alcohol.

Alcohol is obtained by distilling a saccharine liquid but it can be obtained synthetically from its elements, carbon, hydrogen and oxygen (C_2, H_2, OH). Wood-alcohol, denatured alcohol and methylated spirit are forms of spirit which have been rendered unfit for human consumption. They consist of a mixture of rectified spirit and wood naphtha or methy-alcohol with addition of pyridine or petroleum.

A Limed Oak Finish

I HAVE recently made a small oak loudspeaker cabinet, but instead of staining and polishing same, I was thinking of trying to get a limed oak finish. Please instruct me how to do so.—(C.J.B.)

YOU should try a limed oak effect on some odd pieces of wood before commencing on your completed speaker, in order to get the "hang" of it, and to prevent spoiling the finished work. Here is how to do it. A piece of unslacked lime should be slacked with water until it is the consistency of paint. When it is cool, the work is brushed with the solution, and the lime stain wiped off just before it gets dry. Then leave the work to dry naturally in a medium temperature, and afterwards apply a coat of white polish with a brush. If the grain is raised at all, glasspaper it down with fine grade paper. A wax-polish, made with half and half white wax and beeswax is given a small quantity of zinc white, and rubbed over the work in the usual way. This will give the white grain effect required. The proportion of lime is approximately 1lb. of unslacked lime to 1¾ pints of water.

A Leaky Tent

PLEASE tell me the best way in which I may be able to stop the fine spray which enters my tent which I have just bought. It is a 6ft.×4½×3½ Hiker's tent, and when it starts to rain after a while a fine spray comes through. Some of my friends told me to steep it in linseed oil or alum dissolved in water, but before trying any of these I should like your advice on the matter.—(J.A.T.)

THE linseed oil treatment is for a tent which lets in the water, but the writer prefers to use the following method. Boil an ounce of isinglass in a pint of *soft* water until it is completely dissolved. Strain through a piece of linen. Dissolve a quarter of an ounce of white castile soap in a pint of water strain and add to the first solution. Dissolve 1oz. of alum in two pints of water, strain and add. Stir the mixture and heat over a slow fire until it simmers. Apply the solution while still hot to the outer surface of the tent with a small flat brush. Wash it well into the seams. Let the tent dry thoroughly before packing it up The above quantity is sufficient for about 80 to 100 square feet of material.

Sound and Movement

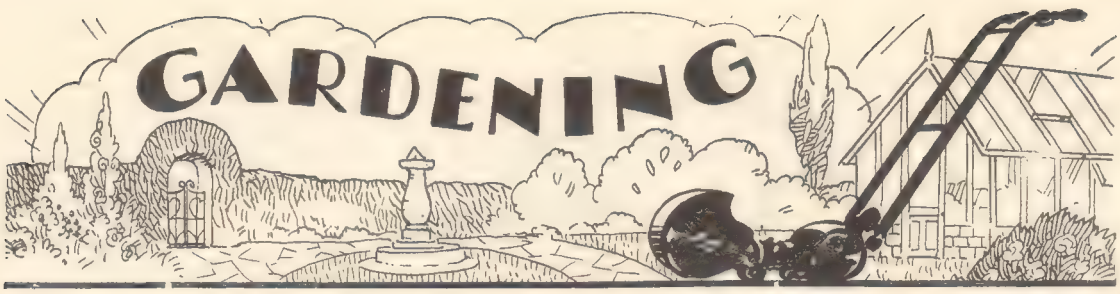
IS there any metal or substance that will move slightly to sound, such as a loud whistle?—(C.P.)

SCIENTISTS have discovered that Mica when exposed to an abnormal heat, will respond to sound, but the experiment is of no practical value and is only of interest to those engaged in chemical analysis.

Lighting a Model

COULD you please show me how to wire the bulbs for St. Paul's Cathedral model?—(W.D.)

EIGHT lamps should be sufficient, and quite a large battery can be concealed in the model. The switch itself can be fixed to operate through a door or window. If the roof is not made in a removable form, then the battery will have to be outside, and wires run through the base. Use as thick a wire as possible ; 4½ volt. flash lamp battery and 3½ volt bulbs should be used.



WORK FOR MARCH

Now is the time to start in earnest, spring brings busy times in the garden.

WHILE leaf buds burst into a mist of freshest green the gardener begins to sow and plant in earnest. The Alpines are steadily advancing to their most beautiful profusion of Aubretia mauves, White Arabis casts drifts over boulders and wallflowers are beginning to burst into bloom in mild districts, though the colder regions have to wait till April and even May for the best of the Spring bedding shows.

Meantime seeds raised in the greenhouse can be pricked off and later batches sown, always taking care to water the newly sown by immersion in water as in sketch.

A Temperature of 45° to 50° F. is suitable for seed raising. Outside, seeds may be sown now in suitable weather. Annuals, biennials and perennials may all be put in, beds filled with Spring bedding plants should be cleared of any debris such as dead leaves or rubbish blown there by the wind and the soil surface forked over.

Watering pans of fine seeds, showing them plunged to the rim in a bath of water.

Loose plants should be firmed and the grass edgings of beds trimmed, even though actual cutting of lawns has not begun.

Worn Lawn Patches

But while the grass is as yet not undergoing weekly cutting, it is a good plan to renew old worn out patches on the lawn. Dig out any perennial weeds such as Plantains, Dandelions, or Dockweeds and rake out any moss.

Then, where there are bare patches left by these operations, or worn parts, dig these right out beyond the actual bareness, and leave to settle for some time or ram very firmly and sow seed. Sow thickly so that good thick turf is ensured.

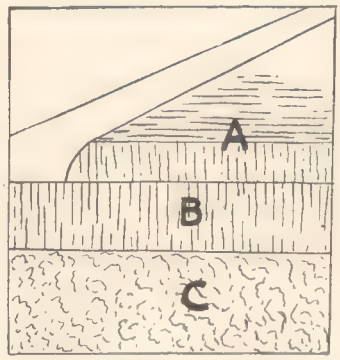
Dressings

A dressing of lawn sand at this time helps to get rid of daisies. Make this of ¼-lb. sulphate of iron, 1½ lb. sulphate of ammonia, and 12 lbs. of sand. Sulphate of ammonia alone will destroy daisies. It will blacken the foliage. This should be raked off and if the bare places are very large they should be treated in the same way as other bare patches.

This work completed, the lawn should need no further treatment during the summer, unless it is very poor, when occasional dressings of a fertiliser are beneficial. It depends on the nature of the soil what dressing is applied.

Poor grass on a light soil is improved by Sulphate of Potash or Kainit 1 oz. to the square yard in March. On heavy soil 2 ozs. to the square yard of Superphosphate of Lime or mix equal quantities of this and Bonemeal. Slaked Lime is used to sweeten sour soil. Use ten ounces to the square yard. Soot removes moss.

Sulphate of Ammonia as well as killing daisies, nourishes the grass ; One ounce to the square yard two or three times during the growing season is helpful. Clover is in most lawns but where it threatens to oust the grass the largest patches can be discouraged by using Nitrate of Soda. Crush this and spread it on or dissolve in water and sprinkle on using ½oz. to the square yard.



A. DECAYED MANURE, LEAF MOULD AND MORTAR

B. DECAYED VEGETABLE REFUSE AND OLD MORTAR

C. FRESH STABLE MANURE

A section showing the building of an asparagus bed in heavy soil.

Cleaning Paths

This is a good time to repair and clean paths. Moss may be removed by a hard broom but weed killer is more efficient and at the same time ensures that paths will be clean through the season. Much labour is thus thereby saved at the busiest time of the year.

Where gravel is old and unsightly, it is a good plan to take the surface off the path and have a fresh layer put on. At the same time make up any

unevenness in the surface. Crazy paths should also be repaired at this time, for loose paving can be very dangerous.

Whenever the majority of the Herbaceous plants are well up, fork over the border. It is the best way, for to do this blindly before the plants are showing well is often to dig in some treasures. This is one reason why the owner of the garden should do this digging himself or even herself, for only the actual planter of the border can know it intimately enough to safeguard each plant.

Even invisible ones or dormant bulbs are safe under the fork of the owner. If this were more frequently done there would be fewer complants against the long suffering jobbing gardener who, after all, only does what he is told, even if it be at an unsuitable time.

Rearrangement of plants, the division of phloxes and the planting of Irises and Montbretias may be done now.

IN THE VEGETABLE GARDEN

IN the vegetable garden sowings now begin in the open and early batches of seedlings raised under cover will be ready for hardening off and, in some cases for planting out in permanent quarters.

If you have decided to crop your garden on the rotation plan begin by attending first to the permanent beds of Seakale and Asparagus. To begin a plantation of Asparagus dig three spits deep and in the bottom spit put plenty of fresh stable manure ; in the next spit put decayed vegetable refuse and old mortar, in the top, decayed manure and leaf mould and mortar.

Asparagus Beds

These beds are best prepared in Autumn but may be made ready in March to receive the plants in April. The beds should be two to three feet wide and raised if the soil is heavy, flat beds are suitable in light soil. To raise the beds make alleyways between them throwing the displaced soil on to the beds. They will then be ready for one to two year old crowns which should be purchased. Reading Giant is a favourite, being hardy and well flavoured ; others are Connover's Colossal and Market Favourite, an early crop being obtained from this.

Seakale grows wild on the seashore, so a sunny sandy spot is most natural to it. Work the soil deeply and use cow or pig manure ; if however the soil is heavy use only stable manure and if available seaweed. It can be raised from seed, but it is far better to plant fangs or pieces of root about five or six inches long with bud side up. Plant 10ins. apart in rows with about 15ins. between rows. The end of March is the time to plant. Lily White is the best one to plant.

Onion Growing

In a small garden there may only be room for a few herbs as edgings to larger cropping beds. But nearly everyone grows Chives, the well-known perennial onion. Divide the roots in March and plant in rows a foot apart with six inches between each plant. A newly made bed should last three years if a dressing of decayed manure is dug in every Spring and weeds kept down.

Parsley should also be sown in a deep rich and moist soil. The seed is slow to appear, sometimes taking six weeks to germinate in cold districts. Myatt's Garnishing, Triple Curled and Moss Curled are good.

Early potatoes which have been sprouted may be planted in mild districts and Celery trenches prepared. A harvest of Spring Cabbage should now be ready for gathering and there may also be Broccoli and Kale.

The Rotation Crop

In the first bed of your rotation grounds sow beet, carrots, leeks, parsnips, and plant potatoes and make the celery trenches ; the celery being best sown under glass or on a hotbed, or plants may be bought and planted later in June and July. Meantime what is known as a " catch crop " may be grow along the edge of the trenches, and the best for this position is a crop of Lettuces. By means of these " catch crops," the economical gardener makes use of every foot of land.

In the second rotation bed sow Beans, Peas. Onions, Turnips and Round or Summer Spinach. For the Spinach choose a moist shady spot. In the third bed sow Cabbage, Kale, Brussels-Sprouts and Broccoli.

A BOOK ON WOODWORKING DRAWING

UNTIL fairly recently the method of preparing Working Drawings has been inclined to vary a good deal, with the result that they have often proved very misleading. For example, in one place a dotted line might be used to indicate something which is hidden, in another place as a dimension line, and elsewhere as a projection line or a centre line.

The result of all this has been that a committee was formed, representing all our leading industries, and a definite method of preparing working drawings was decided upon. Certain types of lines now represent definite things, dimensions are inserted in a particular way, and plans and elevations are projected in certain directions only. There are, also, now, recognised ways of indicating the various materials of which different parts are made.

If you are interested in this question, and keen on being able to turn out your drawings correctly, you will find the report of the committee, and the methods that have been adopted, published in book form entitled " British Standard Engineering Drawing Office Practice," by Crossby, Lockwood and Son, for 2/-.

It is quite likely you will find this book in your Handicraft Library. Anyway, you will be able to borrow it from almost any public library. If, however, you have any intention of becoming a draughtsman later on we would advise you to buy it for yourself, so that you will become familiar with the correct methods.

MISCELLANEOUS ADVERTISEMENTS

The small "to sell" or "wanted" announcements appearing below are accepted from readers who want to sell anything except fretwork goods, or from usual advertisers of bargains of interest. The advertisements are inserted at the rate of 2d. per word. Name and address are counted, but initials or groups, such as E.P.S. or £1/11/6 are accepted as one word. Postal Orders and Stamps must accompany the order. We cannot guarantee any date for these to appear, but they will be inserted in the earliest issue.

PATENTING INVENTIONS. Advice free.—Kings Patent Agency Ltd., 146H Queen Victoria Street, E.C.4.

DOLL'S HOUSE PAPERS, from 1½d. sheet. Send for list—Hobbies Ltd., Dereham.

DRUM HEADS, 5/- or 7/- post, hoop lapped free.—"Potters," 36 West Street, London, W.C.2.

FREE, set of Hungarian portraits to every applicant requesting cheap approvals—send 2d. stamps.—C. L. Arrowsmith, 85 Abbotts Park Rd., Leyton, E.10.

HAWAIIAN GUITAR! Make your own from Hobbies' design and materials. Write for details to Hobbies Ltd., Dereham.

BUMPER PACKET FREE! Contains 100 different Stamps, including Pictorial, Scarce Stamp, Map, Ship, Native, Air mail, etc. Request approvals.—J. F. Smith, 19 Rougemont Avenue, South Morden, Surrey.

100 different Stamps free to applicants for ½d. approvals. Big discount.—Cox, 21 Dennis Mansions, Westcliff.

TRAY HANDLES from 3d. pair.—Hobbies Ltd., Dereham.

500 World-wide Stamps 6d.—Way, Cheadle-Hulme, Cheshire.

BIG PACKET, including beautiful mint Colonials, free to approval applicants.—D. H. Scott, 9 Church Rd., London, S.E.23.

MOVIES AT HOME. How to make your own Cinema Projector. Particulars free. Moviescope (H), 116 Brecknock Road, N.7.

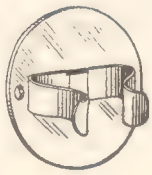
NAIL BOX with eight partitions and sliding lid. Made of seasoned wood. 1/6, post 4d.—From Hobbies Ltd., Dereham.

£8 Hornby Railway Stock, 50/-, or separately.—E. Gascoyne, Haddenham, Cambs.

MODEL THEATRE. The original Penny Plain and Twopenny Coloured Dramas, Scenes and Characters, Stages, etc. Send for list.—"Stage," 7 Goldings Road, Loughton, Essex.

CONCERTINA, mahogany case, 20 keys, 40 reeds, 5-fold bellows, 22/6. Unbeatable offer. Bagatelle complete, Child's Folding Carriage, or Simplex Typewriter presented free to all purchasers. State gift when sending.—Lewis, Office 43-44, George Street, Manchester 1. Limited to 100 gifts. Send now!

NOTICE.—Our Deposit System is probably of use to those desirous of seeing the goods before they buy. The would-be Buyer sends us his money and we write the Advertiser and give him the address of the person who wishes to buy. The goods are sent by the Advertiser to the Buyer on approval and when the purchaser gives us his consent we will forward the money to the Advertiser in payment of the goods which the purchaser will keep. In addition to the value of the goods, a Deposit Fee of 1/- must be enclosed to cover cost of our correspondence. Each party in the transaction will pay carriage one way. We cannot accept goods for exchange, nor any money for goods valued at less than 5/-. All money should be sent by Registered Letter, but we cannot be responsible for any damage or loss incurred. All letters to be addressed to the Advertisement Manager, Hobbies Ltd., Dereham, Norfolk.



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Don't let your tools lie about just anywhere. Keep them neat and tidy in Hobbies Tool Racks and Clips. Cheap to buy, they give service out of all proportion to their low cost.

TOOL CLIPS
2d. each
1/9 dozen
Postage 4d.

TOOL RACK—In two sizes.
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MAILS BY ROCKET

ON December 19th, 1934, an attempt was made to send letters from Lymington practically to the Isle of Wight by rocket—actually it was intended that the rocket should land in the Solent and a motor boat cruising about when the projectile dropped, in order to pick this up and rescue the letters As a signal, to say that the boat was ready, a rocket was fired from that, and then the actual rocket carrying the letters was sent up.

Unfortunately, the wind deflected this one and it only travelled a distance of about a mile and a half and then finished up by burying itself in the mud on the marshes.

It contained about 600 letters, but unluckily they were damaged by the mud and the water, and what was even worse the rocket itself suffered so badly that it was impossible to use it again. So badly, in fact, that before the letters could be released the nose of the apparatus had to be sawn off, and consequently a second effort with the same projectile was impossible. It is understood however that the inventor, Herr Zucker intends to try again if he has not already done so before these lines appear.

This was not the first attempt, and we are indebted to Mr. Albert Harris for his kindness in giving us permission to make use of his notes which appeared in the Philatelic Magazine.

The first experiment took place on Wednesday June 6th, 1934 and the venue was the Sussex Downs, not far from Brighton. The experiment was kept a secret; in fact only six people were present. Twice the trial had been postponed owing to the fact that the secret explosive charge was not obtainable from Germany; but a substitute was prepared in England which was more successful than the inventor thought it would be.

On Guy Fawkes day most people use a bottle from which to release their rockets. Moreover, when they fire them they stand well back because they are not quite sure of the direction in which the rocket will leave the bottle.

Such haphazard methods would not do for letter carrying; direction must be fairly certain, and the size of the rocket demands respect. Preparations in the shape of fitting up a specially prepared launching rack commenced very early—at 3.30 a.m. to be correct. By sunrise everything was ready for the trial, the slides of the rack having been well greased with butter!

The wind direction and force were first tested by means of an ordinary rocket stick, then the actual firing could start. One can well imagine the eagerness of the chosen few—had everything been done correctly, or were their hours out of bed to prove wasted time? However when the inventor pressed the button there was a hiss and a roar and away went the rocket. After it landed, a second and equally successful discharge was effected.

The letters carried in this First British Rocket Mail Post were franked with 'Apex Exhibition Labels' (Labels printed for the International Air Post Exhibition held in London in May 1934) which had been overprinted "Rocket Post-First British Flight" and 2,864 was the total used on the mail.

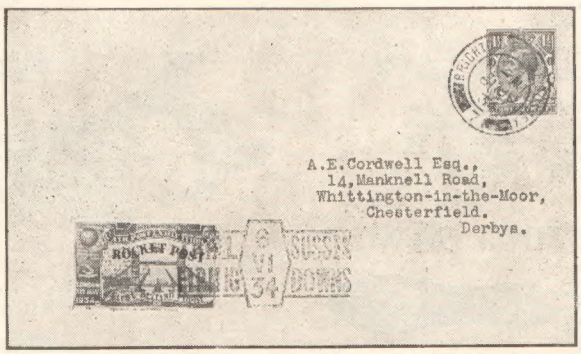
The obliteration was a special frank and cachet, the former being in the form of a map of England and Wales made up by repeating the words "ZUCKER ROCKET POST. ROCKET FEE. TWO SHILLINGS AND SIXPENCE PAID."

It may not be possible to read these words on the illustration of one of these covers shown, but the map mentioned covers that part of the stamp to the left of the left-hand tower of Tower Bridge. The cachet reads "TRIAL FIRING, 6. VI. 34, SUSSEX DOWNS."

After the letters had been recovered from the rocket, they were taken by motor to Brighton and posted in the ordinary way to the individuals to whom they were addressed. That accounts for the normal 1½d. postage stamp which appears in the usual place on the rocket mail covers, and the postmark of Brighton.

Herr Zucker has great hopes for his rocket apparatus, because naturally the speed at which such a projectile travels would considerably shorten even the time taken at the present by Air Mail. The estimation for the time to cross from Dover to Calais is two minutes!

But that remains to be proved.

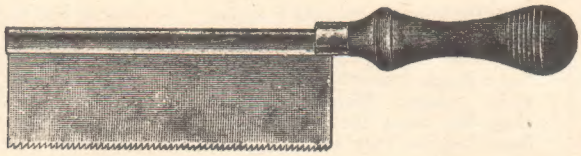


An actual envelope flown by the Rocket Mail and stamped as described in this article.

Read the opposite page for Stamp Advertisements.

SAWS for the Handyman

A saw for practically every requirement of the home woodworker ! Saws to give you dependable service yet offered at real competitive prices. You make no mistake when you buy from Hobbies.

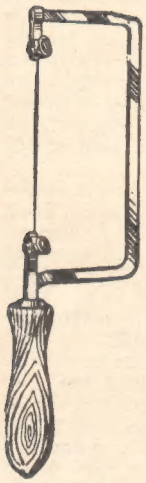


BRASS BACK SAW

Just the saw for cutting beadings and small mouldings. The finely spaced teeth leave practically no "burr."
No. 125. Price 1/3 Postage 4d.

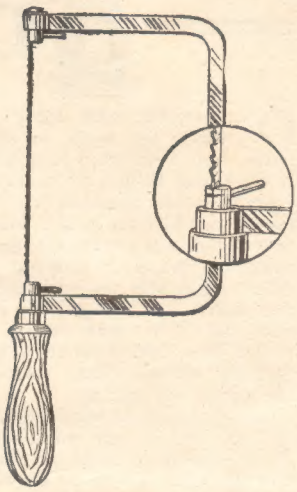
KEYHOLE SAW

Most carpenters and handymen know the value and usefulness of the Keyhole Saw. This one is well made and finished to give satisfactory service.
Price 9d. Post 3d.
Separate Blades 4d. each. Post 1½d.



JEWELLER'S SAW

This saw takes a standard 5in. wood or metal fretsaw blade. A strong spring enclosed in the handle gives the required tension.
Price 2/3 Post 3d.



COPING SAW

You can turn the blade in this Coping Saw for cutting large work. The blade is 6½ins. long.
Price 2/6 Post 4d.
Spare blades, 3d. each ; 2/6 doz. Post 2d.

TENON SAWS

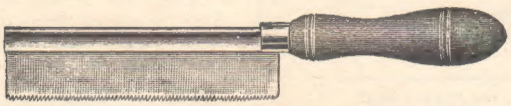
BRASS BACK

6in. blade	...	1/9	7in. blade	...	1/10
8in. „	...	2/-	9in. „	...	2/3
10in. „	...	2/9	12in.	...	3/-

IRON BACK

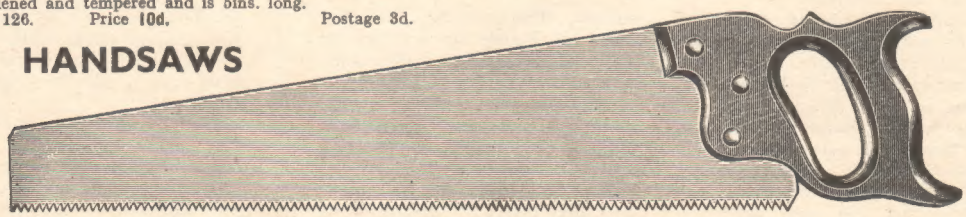
9in. blade 2/- 10in. blade 2/6 12in. blade 2/9
Postage 6d. extra on each.

METAL CUTTING SAW



A useful Saw for the metal-worker. The blade is specially hardened and tempered and is 5ins. long.
No. 126. Price 10d. Postage 3d.

HANDSAWS



12in. blade 1/6 18in. blade 2/3 24in. blade 3/-

SUPERIOR QUALITY.
18in. blade 3/6 24in. blade 4/- 26in. blade 4/6
Postage 6d.

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DESIGN SHEETS.

The presentation Design Sheet is given only with current copies of Hobbies Weekly and not with back numbers. The designs, however, can be obtained separately, from Hobbies Ltd., price 4½d., post free, or 10d. in the case of double size sheets.

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All orders and letters respecting advertisements should be addressed either to the Advertisement Manager, Hobbies, Dereham, Norfolk or to 52 Bedford Street, Strand, London, W.C.2

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An Index for any volume is obtainable for 4½d. post free, and Binding Cases to take a complete set of 26 issues (making the volume) are supplied for 1/6, or sent post free for 1/8. The Cases are in red linen with gold blocked name on the front. The Azabook Binder, to hold 24 copies which you can fix in yourself is 3/3 (3/6 post free) including two dozen fastening staples.

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CONTRIBUTIONS.

The Editor is always pleased to consider suitable articles for these pages, which, if accepted, will be paid for at the usual rates. While every effort will be made to return unsuitable contributions (if stamps for that purpose are sent with them), the Editor does not accept any responsibility for their loss.

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Specially designed for the amateur

Suitable for all kinds of woodwork

There are hundreds of jobs made possible to any owner of this combined lathe and fretsaw. You can make your own knobs, feet, turnings, legs, etc., with the lathe and cut out the ordinary woodwork with the fretsaw. The whole machine has been specially designed for the amateur to be light and easy to operate, and yet strong enough to undertake almost any class of work. The driving wheel is provided with grooves to give a change of speed, and the fretsaw can be attached and taken off easily and quickly. The treadle movement is strong and smooth running, and a circular saw can be added to the lathe if desired. The machine is supplied in a crate ready to use, complete with saws, cutting tools, rests, etc. Already in use by amateurs everywhere.

AN ILLUSTRATED LIST IS SENT FREE ON REQUEST

The lathe has a 24in. bed with 14in. between centres. It stands 27ins. high to bed and is firm and rigid on its feet. The lathe head is provided with a 2in. Face Plate, a spur centre, and a screw centre for turning cups. It has also a solid emery wheel and a drill spindle. The tail stock has a screw feed centre. The lathe is provided with two rests, three turning tools, wrench and screwdriver, and with the fretsawing attachment, designs, saws, drill points, etc. The fretsawing attachment is secured to the lathe bed by one bolt, and can be put on and taken off as desired. It is fitted with 19in. arms, nickel-plated tilting table and Hobbies spring-open lever saw clamps.

See one at any Hobbies Branch, or obtainable through any ironmonger. Also direct from the makers: Hobbies Ltd., Dereham, Norfolk.

COMPLETE

£4 10 0

Carr. forward

A larger lathe, 20in. between centres and fitted with a fretsaw attachment, also supplied for £5/10/0 carriage forward

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